Last Update	06/03/2020	Total amount of questions		2130

Working tenders		
Source	**Solution**	**Amount of questions**
Disclosure and Barring Service	Discovery and Disclosure	44
Royal Holloway and Bedford New College	Business intelligence software development services	9
Manchester Metropolitan University	DPS	14
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	11
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	11
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&DevOps	12

Successful tenders		
Source	**Solution**	**Amount of questions**
Department of Finance	eDiscovery Software Solution	50
DfE	SA - Secure Access	55
ItemBank		7
ItemBank 2017		29
JISC	Enterprise Data Warehouse & Business Intelligence Solution	110
LMU		73
NSS		18
OBU	Application System	5
DfE	GIAS - Database Administration and Enhancement	12
Jisc	Research and Development Consultancy Framework 2019	46

Closed tender		
Source	**Solution**	**Amount of questions**
APRA	A new data collection solution	44
Bank of England	Data Review Platform	28
BEIS	Energy Statistics Data Management Solutions	19
Buckinghamshire County Council	Building a digital adoption service	6
CPRD	Development of eRAP Portal	19
Crown Commercial Services	Supply Teacher Services Beta	6
Crown Commercial Services	Web-based FM Beta	7
Crown Commercial Servises	Crown Marketplace Foundation	15
Crown Commercial Servises	MISO	26

		Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	18
		Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	9
		Department for Work & Pensions	UC Data Agile Delivery Team	5
		Department of Agriculture	IAM	28
		Department of Health and Social Care (DHSC)	Medical Examiner programme	13
		DfE	Adoption Register	29
		DfE	Alpha (C)	3
		DfE	Beta: Get School Experience Service	18
		DfE	Capital Directorate Systems and Data Discovery	15
		DfE	Data Modernisation Division (DMD), Data Group	26
		DfE	Digital Service Transformation Pipeline Delivery Programme	8
		DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	11
		DfE	eDisc Matrix Portal	9
		DfE	Intervention in an Academy	7
		DfE	Multiplication Tables Check (MTC)	13
		DfE	National Pupil Database Access (Safe Settings)	7
		DfE	National Pupil Database Data Matching Processing Collation_Discovery	10
		DfE	NPD-API	5
		DfE	Schools financial benchmarking service - further development and support	13
		DfE	Service design for Schools Digital Platform	14
		DfE	statistics dissemination platform (alpha and beta)	6
		DfE	Teachers' Payment Service - Beta	14
		DfE	Agile development of a replacement for Key to Success and School to School	
		DfE	Transformation Service Delivery Capability	10
		DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	12
		DfE	Technology Directorate - Business Analysis digital transformation partner	14
		DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	19
		Dublin Airport		45
		DVLA	Strategic Enquiries Platform Engineering Squads	8
		Enterprise Ireland	Development and Delivery of a Start-Up Landscape database	33
		ESFA	Business Analysis capability (DfE)	13
		ESFA	National Careers Service Digital Personalisation	12
		ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	10
		ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	26
		Greater London Authority	London Datastore Discovery	9
		Hackney Council	Identify where to store housing management data and manage migration	7

		Hackney Council	Prototype and build a production ready MVP Directory of Services	7
		Lancaster University	IT Software Development	18
		Leicester	2FA	7
		London Fire Commissioner	Data Platform	4
		London School of Hygiene and Tropical Medicine	Improvement of data management, business intelligence and identity management	7
		Met Office	SurfaceNet Collate Platform	12
		NHS Health Education England	Historic Foundation Doctor E-portfolio Data Interface	5
		NHS Improvement	Nottinghamshire Integrated Care System (ICS)	12
		OBU	IAM	102
		Office for Students (HEFCE)	Discovery for a resource	9
		Office for Students (OfS)	Alpha and Beta for a resource to support prospective higher education students with decision making	5
		Ofsted	Ofsted digital services - discovery and alpha services	7
		Ofsted	Inspection Reports as web content	6
		PHE	ARCAS information System	8
		PHE	Developing a Server Database Management System & Web Portal	13
		PHE	Modernising PHE's Population Health Intelligence System	9
		Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	11
		Social Work England (SWE)	End to end digital service	10
		Sports England	Survey	15
		STA - DfE	Assessment Service (alpha)	12
		STA - DfE	Digitally enabled assessments - service line	7
		Teesside University	Learner Analytics	77
		UK SBS IT17194 BEIS	Primary Authority Register Beta	33
		University College London	IAM	18
		University of Derby	IAM	5
		University of Lincoln	IAMS	6
		University of Sheffield	Middleware	34
		UWE Bristol	Digital experience platform	13
		Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	18
		DfE	Service design to help schools buy catalogue goods (discovery & alpha)	17
		STA	digitally modifiable paper-based tests: discovery phase	11
		ONS	Matching System	28
		RFS	Road Freight Electronic data	10
		Cabinet Office	Analysing and Managing Documents	6
		The Department for Transport and Highways England	Temporary Bridge Solutions information	5
		Anglia Ruskin University	Student Placements Software as a Service	78

		Source	Solution	Amount of questions
		DfT	RAIDS – Database Discovery Exercise	11
		DfE	Service Delivery Capability	10
		University of Exeter (UoE)	Provision of a Curriculum Management Reference Data Service	12
		IDeA	LG Inform Plus	6
		ONS	Energy Data Visibility Discovery	14
		DfE	Digital Transformation Pipeline (Region: South)	17
		Health Education England (HEE)	Data Collection Overview - Collection and Management	17
		Tenders not pursued		**Amount of questions**
		Source	**Solution**	
		NUIG		18
		BFI	Single View Datawarehouse	5
		University of Manchester	Identity and Access Management	7
		Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	22
		London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	8
		Joint Tenders		
		Source	**Solution**	**Amount of questions**
		Hackney	eRecruitment	206

Intro	Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.				
	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Bank of England	Banking	Data Review Platform	Loading, processing and storage of large volumes of documents from internal sources (including File Site, CRM, Outlook and scanned hard copy records) and external sources (likely on USB stick or external hard drive) and in respect of multiple cases running concurrentl	Texuna is an AWS certified cloud hosting partner. Processing and storage will take place through AWS private cloud. Source data is preserved separately following processing (deduplication process and indexing). Texuna's eDisc platform can process all sources listed and multiple file types through the use of api's Multiple cases (matrices) can be processed and held from multiple data sources.	
Bank of England	Banking	Data Review Platform	De-duplication and extraction of metadata	De-duplication of records is carried out throughout the data load process as the data is indexed. The solution prevents duplicate or near duplicate documents from entering an index or tagging documents with a signature / fingerprint for duplicate field collapsing and can be efficiently achieved with a low collision or fuzzy hash algorithm. This feature supported out of the box by indexing engine Apache Solr embedded into solution. Metadata is preserved through the de-duplicate and indexing processes and can be extracted through the platform. Document metadata is available to be reviewed including information about document family. Texuna's eDisc solution uses well known open source components for data extraction: Apache Manifold and Apache Tika. Apache Tika has parsers for hundreds file formats including PDF, MS Offices and OpenOffices formats. Apache Manifold is a connectors framework able to extract data from dozens of systems. The solution is highly configurable and new file formats parsers can be added as plug-ins.	
Bank of England	Banking	Data Review Platform	Rolling uploading and processing of data as it is obtained at various stages of the review	Data uploads on a rolling basis are simplified through the use of AWS S3 buckets. Delta uploads are tracked through matrix indexing and sub-matrices can be easily created for continuing data loads. Sub-matrices can carry over the same reviewer permissions, or can have separately defined permissions, according to review requirements.	
Bank of England	Banking	Data Review Platform	Filters and search terms to be applied to the data to create a refined set of relevant material	Texuna's eDisc solution incorporates multi-layered search and filtering options allowing for 'deep-dive', specific results to be generated. These include, but are not limited to, date ranges, custodians, keywords, document types, document names, metadata, and file types. The solution is configurable to use all metadata extracted from files in searches and filters.	
Bank of England	Banking	Data Review Platform	Audit trail providing history of all documents processed	Texuna eDisc solution maintains full audit of the indexing process. Audit contains data when file was processed, indexing result, path to file and other information useful for analysis. It is possible to search for audit records using filters and export records as CSV / Excel file for further analysis. A basic task manager allows to do lists to be created from matrix subsets and allocated to specific users for review. The task manager also allows you to quickly obtain a summary of progress, statistics of work done and work remaining. The Audit stores information on number of logins, number of tags placed by user and redactions completed.	
Bank of England	Banking	Data Review Platform	Results need a sophisticated method of classification, such as the organisation of results into customisable folders and creation of sub-folders to enable allocation of documents to individual reviewers	The Texuna eDisc solution uses a task manager to allow for allocation of review tasks to individual reviewers. Sub-matrices can be created, based on the results of initial reviews, and then allocated to other reviewers on a review group or individual user basis using the task manager. These can then be output as separate production sets.	
Bank of England	Banking	Data Review Platform	Secure access by investigation	Access and permissions can be controlled directly through the application itself using individual user permissions or group allocations/assignment. These can be defined on a matrix by matrix basis.	
Bank of England	Banking	Data Review Platform	Application of search terms and other filters by the investigation team in order to identify and locate documents of a specific type or category (with ability to save searches and for search term hits to be highlighted in documents), and custom sorting of results	Texuna's eDisc solution incorporates multi-layered search and filtering options allowing for 'deep-dive', specific results to be generated. These include, but are not limited to, date ranges, custodians, keywords, document types, document names, metadata, and file types. Identified keywords are highlighted within the document viewer and multiple sorting options exist. The matrix utilises Solr scoring that provides a relevance score against the other objects that have been indexed. Search results can be saved through the export of results as a sub-matrix that can then be separately reviewed.	
Bank of England	Banking	Data Review Platform	Creation of "tags" (customised by the investigation team) to be applied to documents during the document review process, which can subsequently be used to sift and organise the data. Likely to include: relevant, not relevant, undetermined, relied on, potentially undermining, LPP, initial review complete, reviewed by, as well as a free text comments box, and tags relating to each work stream, topic, and potential subjects for interview	The Texuna eDisc solution provides for client defined and adaptable flags relating to each generated matrix. Free text comments and annotation is provided, as is workflow management, providing the ability to assign objects to other users for review / comment / action.	

	Sector	Solution	Question	Template Response	Picture number
Intro		Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.		
Bank of England	Banking	Data Review Platform	Viewing of documents in preview and near native format (i.e. without having to open each document for review) as well as native format, and in a standalone viewer window to allow for use of dual screens	The Texuna eDisc solution is a web based application using a browser. It provides a document viewer pane, allowing the preview and review of an object, as well as the ability to action the object (flag, assign, redact) from the view panel. For more detailed reviews, the object can be viewed in full screen and provides ease of action and ability to navigate through the other results without navigating away from the full screen view. Review of files in native format is made available as a downloadable file only for those users with the appropriate level of permissions. User permissions can be defined on a case-by-case (matrix-by-matrix) basis.	
Bank of England	Banking	Data Review Platform	Tagging shortcuts such as bulk tagging, auto-filling the tagging previously applied and other keyboard shortcuts	The platform allows for bulk tagging and utilises keyboard shortcuts	
Bank of England	Banking	Data Review Platform	Identification of related/family documents and option to link tags	Related / family documents are linked to the source object. These documents can be tagged as part of that family, or independently tagged where required.	
Bank of England	Banking	Data Review Platform	Printing of documents directly from the platform for Bank staff and the review team only; with watermarks to ensure audit trail of who printed	The Texuna eDisc solution allows only for printing of PDF and images directly from the application (printed via browser). Printing of objects in their native format requires them to be downloaded and printed through the native application, or via conversion into PDF through the application to allow for direct printing. Watermarking will require minimal development work to implement and will be based on the Bank's required watermarks	
Bank of England	Banking	Data Review Platform	Downloading of documents from the system on to the review team's Bank laptops and the ability for bank employees to export onto external devices for the sharing of material with external parties as required, such as by exporting to create interview bundles (e.g. via approved encrypted external devices) and/or by enabling shared access to documents	Objects can be filtered, searched and tagged through the platform in order to create document sets / interview bundles. These sets can then be used to create interview bundles as sub-matrices for review and tagging through the platform These sets can also be exported to either the AWS s3 bucket or to a local machine for sharing via bank approved mediums.	
Bank of England	Banking	Data Review Platform	Exporting review results into an excel spreadsheet to generate a document log	All activity within the application can be exported into Excel. This includes all metadata, user activity and review results.	
Bank of England	Banking	Data Review Platform	Use of a secure virtual data room to share either documentation from the review or the draft report for the purposes of Maxwellisation or consent for publication; without printing privileges for those accessing the system for the review of documentation (the Review and Bank Teams may wish to retaining printing rights).	Texuna will utilise a third-party virtual data room provider, allowing for the export of production sets from the platform with ease of upload to the virtual data room. We shall use an appropriate and recognised third party VDR provider such as EasiShare to ensure performance and security requirements are met, or work with a VDR provider nominated by the Bank.	
Bank of England	Banking	Data Review Platform	Archiving compatibility	Source objects, reviewed objects / production sets can be exported through the application into AWS s3 to allow for archiving on the Banks internal systems.	
Bank of England	Banking	Data Review Platform	Retrieving documents from the system at the end of an investigation on to Bank systems	As with 19 above, resulting production sets at the end of an investigation can be exported from the application for storage onto the Bank's systems.	
Bank of England	Banking	Data Review Platform	Production of metadata export (with relevant links to the underlying document) that can be uploaded and retained by the Bank	All activity within the application can be exported into Excel. This includes all metadata as a csv with links to the underlying documents / objects.	
Bank of England	Banking	Data Review Platform	Migration onto the platform of data and metadata stored on systems previously used by regulators	Data exported from prior systems is facilitated through the same methodology as the initial data load, through the use of AWS S3 buckets.	
Bank of England	Banking	Data Review Platform	Analytics functions – e.g. concept clustering / predictive coding to prioritise documents likely to be relevant, identifying similar items etc; analysis of communications between persons.	The Texuna platform provides for the auto-suggestion of keywords and custodians during the initial stages. Documents can be prioritised and sorted by relevance according to the their indexing score.	
Bank of England	Banking	Data Review Platform	Advanced searching, with phrase analysis; e.g. ranking of results, identification of terms potentially missed, exclusion of specific phrases etc.	The platform allows for targeted searches, including matrix slice & dice and filters based on metadata flags and tags with ability to create workflow tasks based on flags. We are currently working with Machine Learning experts to expand analytics functions.	

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Bank of England	Banking	Data Review Platform	Creation of electronic bundles, with customisable referencing and pagination and watermarking of materials printed.	Electronic bundles / production sets can be exported from the platform. These are exported according to the filters applied (e.g. by tag type) and are exported with an accompanying .csv metadata file containing identifier links to the object in its native format.	
Bank of England	Banking	Data Review Platform	Review progress monitoring	Review progress monitoring is achieved through the basic task manager and through audit files.	
Bank of England	Banking	Data Review Platform	Redaction tool to ensure non relevant Bank Confidential material can be redacted to enable the review team to see relevant parts of regulatory reports.	A redaction tool is incorporated into the application and outputs to PDF. It allows redaction in different colours which may be used to identify different reasons for the redactions.	
Bank of England	Banking	Data Review Platform	Email branching	Email branching and threading is displayed through the matrix modal results window and allows for ease of review and batch tagging.	
Bank of England	Banking	Data Review Platform	Document visualisation	Document visualisation is achieved through the document viewer. This can be minimised where required or viewed in full screen as near native view. For native views, objects can be downloaded and reviewed through the native application.	
Bank of England	Banking	Data Review Platform	Bank information security policy and General Data Protection Regulation (GDPR) compliant.	Texuna is ISO27001 certified and will comply with the Bank's information security policies and GDPR terms.	
BFI	Education	Single View Datawarehouse	Single view of customer based on merge of a variety of data sources with no constant key across these different sources	For the Data warehouse single view to be fit for purpose, there should be an enterprise data model across three layers to ensure a truthful account of historical data is well preserved, as well as ensuring the fact and dimension tables are well defined and designed. These layers are: * Conceptual model of common dimensions - the business needs and reporting requirements expected. * Logical model of extended start schema - Texuna advocate the use of an Extended Star Schema, which is less normalised than a classical schema, and provides much better control over how the main dimensions can be changed over time. * Physical model for history management - this is a single unified view of the data that may be populated from a variety of different source systems. It is uniquely referenced and so does not depend for data matching on a constant key in the incoming data. Texuna recommend a Kimball-style data model with support for Type II slowly changing dimensions which essentially provides time-variant master data records giving unlimited historical tracking.	
BFI	Education	Single View Datawarehouse	Aggregate customer data from different data sources into a single record	Texuna propose to configure a standard ETL tool, such as Pentaho, to enable multiple data transformations into the data format setup for the Single Customer View data warehouse. An ETL tool will enable validations and error checking to be performed on the data and will enable., for example, standard format telephone numbers to be created from source data files. Transformation of the data ensures that the data warehouse itself is consistent and the data held is high quality. Use of a standard tool further ensures that changes and updates to the transformations can be made over time as the source systems themselves develop. Data governance will be imposed to further raise data quality and to ensure conformity and robustness over time.	
BFI	Education	Single View Datawarehouse	Output data to a number of analytic and email marketing software tools	Data transformed and held within the single view data warehouse will be a Master Data Store, a single version of truth within a unified Master Data Management process. Output of data from the data warehouse will be supported to any third party tool so that the output file will be a consistent and high quality version of the data held. A variety of different output formats can be supported as it is essential that the tools in common use within BFI are compatible. This will include the suite of marketing and analytic tools that BFI choose to use.	
BFI	Education	Single View Datawarehouse	Identify constituent activity and behaviour across all collated data sources, including membership levels and altruistic activity	Analysis of the data held within the Data warehouse will enable a better understanding of how and when individals choose to use BFI services and what they choose to do. Selection of output data for analysis will enable any criterion within the datawarehouse to be used as a filter. This can include behaviour characteristics related to membership levels or any other data dimention such as geography. Output data may be further analysed using any reporting tool or database so that a more detailed picture of the customer can be ascertained.	
BFI	Education	Single View Datawarehouse	Identify constituent inactivity across all collated data sources	Selection criteria for reporting can be based on levels of use, so that low use can be used. Essentially the data warehouse will be configured so that the business needs are taken into account and the reporting requirements are met from the data held.	
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be compatible with file types associated with Office 2000, 2003, 2010 and 2013.	Texuna has developed an unstructured text object hub already used in multiple UK high court litigations each involving USD100+ million. Texuna's crawler indexes a broad range of object document and data types, delivering a comprehensive search and collaborative document / communications review, using specified keyword/phrase and custodian indexing, technology assisted review and data preservation. Texuna's ETL and data warehouse experience give us an edge in watching data for changes and updating search results. The Texuna solution(eDisc) has been developed to accept and index all formats of Office file types and has been used already in several litigations in the UK courts, providing import, indexing, reviewing, flagging, viewing and export of production sets containing MS Office file types. eDisc works with all MS Office file formats and versions including Office 2000, 2003, 2010 and 2013. Solution process all popular open file formats like PDF and Open Office, mbox/mailboxes/.pst archives, messaging services, phone data, images with OCR, etc.	

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	Sector	Solution	Question	Template Response	Picture number
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be compatible with SharePoint 2013 on SQL Server 2008 R2 and SQL Server 2012 (user developed applications). The eDiscovery tool should be capable of ingesting or interfacing with data from SharePoint 2013 for use as part of the eDiscovery tool's input data. As with all other data being ingested, SharePoint Metadata must be maintained for search purposes. The eDiscovery tool should be able to ingest or interface with all types of content containers within SharePoint, such as lists, document sets, folders, etc. Details of the proposed eDiscovery tool should be provided together with the integration capabilities with SharePoint 2013. Where direct integration capabilities are not inbuilt, the proposer should provide details on how the data will be managed from SharePoint to be ingested into the platform. However, if the software solution is not directly compatible with SharePoint, the Contracting Authority will accept proposals that utilise a third party tool for importing and converting the format. Any such tool must be provided by and will be the responsibility of the successful Tenderer. Any cost associated with the use of this or any other third party tool must be incorporated in the total amount to be provided under Appendix 2 of this RFT.	Texuna's crawler indexes a broad range of object document and data types, delivering a comprehensive search and collaborative document / communications review, using specified keyword/phrase and custodian indexing, technology assisted review and data preservation. Texuna's ETL and data warehouse experience give us an edge in watching data for changes and updating search results. Texuna integrates with the client environments including integration with Sharepoint, OneDrive, Exchange, SQLServer etc. eDisc indexes file systems, mbox/mailboxes/.pst archives, messaging services, phone data, images with OCR, etc. and saves/presents search datasets as sophisticated matrices for each legal disclosure ruling. We track delta changes on legacy and modern systems and implement workflow. We can also use elastic cloud technology to accelerate indexing. eDisc embedds Apache ManifoldCF which provides an open source framework for connecting source content repositories like Microsoft Sharepoint and EMC Documentum, to target repositories or indexes and defines a security model for target repositories that permits them to enforce source-repository security policies. The eDisc works with all types of content containers within SharePoint, such as lists, document sets, folders, etc. Sharepoint 2013 provides extensive REST API for integration. Texuna's eDisc solution is very flexible and may utilize REST API for load any additional metadata and content types.	
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be compatible with Open office file types.	Texuna's crawler indexes Open office file types same way as MS office file types. It delivers a comprehensive search and collaborative document / communications review, using specified keyword/phrase and custodian indexing, technology assisted review and data preservation. Texuna's ETL and data warehouse experience give us an edge in watching data for changes and updating search results.	
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be compatible with PDF files.	Texuna's crawler indexes PDF files, both native files and PDFs created from scanned documents. If PDF contains scanned pages as images, these images are passed to OCR and text is extracted and indexed. The solution delivers a comprehensive search and collaborative document / communications review, using specified keyword/phrase and custodian indexing, technology assisted review and data preservation. Texuna's ETL and data warehouse experience give us an edge in watching data for changes and updating search results.	
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be compatible with HTML, XML and other mark-up language files.	Texuna's eDisclosure matrix is built on the latest modern internet and web-based technologies, having been built from the ground up over the last 3 years. Texuna's crawler indexes HTML and XML files. By default text is automatically extracted from HTML and XML files. Once extracted, text is indexed. However, it is possible to process XML files in a structured way processing information about tags and positions. It is important for format like XBRL where intelligent data extraction processing allows enhance values with metadata. HTML format is parsed as set of files stores locally or as site. The solution allows crawling over web. It is possible to limit depth of links to follow and restrict domains to index. Other mark-up languages may be also processed because of pluggable architecture of the system.	
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be able to import Outlook PST files.	The Texuna eDisc solution can import a multitude of file types, including PST from across the organisation. This can be done either through a direct load of a specified person's mailbox; or through integration with MS Exchange	
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be compatible with Active Directory 2012, (Read Directory services account, Filter and exclude nominated areas).	Texuna's eDisc offering allows for customisable user permissions out of the box. This can easily be integrated with existing ActiveDirectory groups/roles and permissions to enable control over a user's access. An active directory authority connection is essential for enforcing security for documents from Windows shares and Microsoft SharePoint (in ActiveDirectory mode). This connection type needs to be provided with information about how to log into an appropriate Windows domain controller, with a user that has sufficient privileges to be able to look up any user's ID and group relationships.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Department of Finance	Finance	eDiscovery Software Solution	The software solution must be compatible with our current Email system which is Exchange 2013. It must also be compatible with Exchange 2010 and Exchange 2000/2003 which have been used historically and have the capacity to read from current Exchange Mailboxes.	Texuna eDisc solution integrates with MS Exchange using IMAP, IMAP-SSL, POP3, or POP3-SSL email protocols. MS Exchange 2013 is one of the mail servers that are supported out of the box. Exchange 2010 and Exchange 2000/2003 data may be processed in form of backups or direct connection if server is up and running.	
Department of Finance	Finance	eDiscovery Software Solution	Lotus Notes Domino was also used historically for email and is still in use today for a limited number of applications. The proposed system should natively handle direct importation of the Lotus Notes nsf file format (version 6.5 and above). However, if it is not directly compatible, the Contracting Authority will accept proposals that utilise a third party tool for importing and converting the Lotus Notes format. Any cost associated with the use of this or any other third party tool should be incorporated in the total amount to be provided under Appendix 2 of this RFT.	Texuna's ETL tool allows it to pre-process Notes database NSF files and ingest the relevant data. The ETL is based on Pentaho Data Integration which is extendible to allow us to modify or create new plugins to handle edge cases and new file types. Texuna eDisc solution integrates seamlessly with IBM Filenet P8. The IBM FileNet P8 connection type allows you to index content from a FileNet P8 server instance. A connection allows you to reach all files kept on that server. If IBM FileNet P8 is not used for Lotus Domino instance then nsf file can be processed using industry standard utility to convert them to MS Outlook format. The costs associated with this conversion are included into total price.	
Department of Finance	Finance	eDiscovery Software Solution	Any solution must be capable of running on Hyper-V on Windows Server 2012. The majority of our infrastructure is virtual running on Windows Server 2012/2012 R2 Hyper-V clusters connected to iSCSI storage.	Texuna's solution is packaged in self-contained virtual machines that can run across multiple virtualisation options including Hyper-V. Texuna eDisc solution is cross platform and cloud ready. eDisc has been tested on VMs hosted on Hyper-V on Windows Server - 2012.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must be scalable as the amount of data will grow over time.	The Texuna eDisc solution is capable of supporting both an expanding data-set and unlimited number of users as your business requirements may dictate. eDisc solution creates index that is small in size in comparison to original data set. It is very efficient and cheap to put original data on NAS (network attached storage). Size of storage may be increased by system administrator independently along with data size grows. Data preparation and OCR nodes are session stateless and scaled by adding new instances. Frontend is lightweight and works directly with Apache Solr index. Apache Solr includes the ability to set up a cluster of Solr servers that combines fault tolerance and high availability. CalledSolrCloud, these capabilities provide distributed indexing and search capabilities, supporting the following features: Central configuration for the entire cluster Automatic load balancing and fail-over for queries ZooKeeper integration for cluster coordination and configuration.Texuna solution is based on open source components with proven efficiency for scaling.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must be able to index all documents in the dataset and allow for full text indexing, metadata indexing including having Optical Character Recognition (OCR) features to ensure non searchable file types in their native format can be searched across in the dataset. Such files include and are not limited to PDF and TIFF files.	Texuna's crawler indexes a broad range of object document and data types, delivering a comprehensive search and collaborative document / communications review, using specified keyword/phrase and custodian indexing, technology assisted review and data preservation. Data load / ingestion is supported for MS Exchange, SharePoint, SQL Server and data loads from a broad range of legacy systems through a number of different connectors. Texuna's eDisc solution use well known open source components for data extraction: Apache Manifold and Apache Tika. Apache Tike has parsers for hundreds file formats including PDF, MS Offices and OpenOffices formats. Apache Manifold is a connectors framework able to extract data from dozens systems like MS Exchange and MS Sharepoint. Texuna's eDisc OCR module (Tesseract) extracts texts from image from BMP, JPEG, PNG, TIFF, GIF etc The solution is highly configurable and new file formats parsers can be added as plug-ins.	
Department of Finance	Finance	eDiscovery Software Solution	Where any particular file type is not supported by the proposed solution, the tenderer must provide a description of how the file type will be handled in order to be processed by the platform. The Contracting Authority will expect the proposer to perform such data handling. Core file types which must be supported are: NSF, PST, OST, MS Office, zip, PDF, TIFF, SharePoint 2013 associated files.	As above, Texuna uses the Pentaho Data Integration tool to help pre-process any difficult source files required on a project. The tool has many plugins already available out of the box, and is easily extendible in java to create new plugins that can handle edge cases. All core files can be handled out of the box. Texuna eDisc solution is very configurable. IT is based on industry standard open source components Apache Manifold, Apache Tika, Apache Solr. The solution has built in parsers for following data formats from "Core file types" set: PST, OST, MS Office, zip, PDF, TIFF, SharePoint 2013 associated files. As noted above, NSF file type is not supported out-of-the-box but Kernel data recovery converter is used to transform data to MS Outlook format and process as using standard parser. There are 2 strategy to process not supported out of the box file type: Conversion.As noted above, NSF file type is not supported out-of-the-box but Kernel data recovery converter is used to transform data to MS Outlook format and process as using standard parser. Plug-inTexuna eDisc embedds Apache Manifold and Apache Tika text/data extraction components. These components are pluggable. Any Java code that reads a particular file type may be wrapped as plugging and used by system to process data.	

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Department of Finance	Finance	eDiscovery Software Solution	When the indexing is complete, a full log detailing the successfully completed indexing and the files that were unable to be indexed must be generated	Texuna eDisc solution maintains full audit of indexing process. Audit contains data when file was processed, indexing result, path to file and other information useful for analysis. It is possible to search for audit records using filters and export records as CSV/Excel file for further analysis.	
Department of Finance	Finance	eDiscovery Software Solution	Where a further dataset is required to be added to a particular case, the solution must be able to handle further data being ingested into a case.	Texuna eDisc solution creates index that can be extended by ingesting new data from source. Process of ingesting additional data is very straightforward, new files should be put onto source storage and process initiated from UI. Existing index will be updated with data from new files.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must allow for the de-duplication of records.	De-duplication of records is carried out throughout the data load/ingestion process as the data is indexed. Solution prevents duplicate or near duplicate documents from entering an index or tagging documents with a signature/fingerprint for duplicate field collapsing and can be efficiently achieved with a low collision or fuzzy hash algorithm. This feature supported out of the box by indexing engine Apache Solr embedded into solution.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must allow for the identification of near-duplicate records	Texuna will de-duplicate all files, and will provide a configurable scoring metric to automatically identify near duplicates according to different criteria. It is also possible for end users to manually flag near duplicates as part of the review process. De-duplication of records is carried out throughout the data load/ingestion process as the data is indexed. The solution prevents duplicate or near duplicate documents from entering an index or tagging documents with a signature/fingerprint for duplicate field collapsing can be efficiently achieved with a low collision or fuzzy hash algorithm. This feature supported out of the box by indexing engine Apache Solr embedded into solution.	
Department of Finance	Finance	eDiscovery Software Solution	The review phase of any eDiscovery case or investigation will allow unlimited reviewers to log onto the eDiscovery solution to perform the review of the documents, where "unlimited" means a minimum of 150 personnel (and "unlimited" should be interpreted in this way throughout this Appendix 1).	The Texuna eDisc allows for unlimited users to access and perform reviews. Reviews by users can, where required, be subject to further review and approvals. Texuna eDisc passed regular penetration and performance testing and can sustain high loads during active work during review for case.	
Department of Finance	Finance	eDiscovery Software Solution	Contemporaneous access to a case by unlimited personnel is required, as is the facility for personnel to simultaneously work on more than one project concurrently without any interaction or interference among the projects.	Texuna eDisc allows users to work on more than one projects simultaneously. Each project is isolated and does not affect reviews and actions in another project. Upon login user may open a project to work on and then switch to another project. All project reviews are isolated and does not interfere reviews in another project.	
Department of Finance	Finance	eDiscovery Software Solution	There must be at least three levels of users to include an administrator level and two kinds of reviewers with differing access levels and rights.	Our current offering provides the ability to customise a mix of user access level and rights which can be tailored to specific requirements. These can be bespoke to the eDiscovery software, or derived through integration with existing ActiveDirectory roles and permissions.	
Department of Finance	Finance	eDiscovery Software Solution	There must be the capability for the administrator to make changes to other profiles without affecting the saved settings.	Administrator is able to register new users in application, amend their permissions. All user settings are preserved. Administrators can easily be assigned within existing permissions (whether separate from ActiveDirectory or specific to the eDisc offering)	
Department of Finance	Finance	eDiscovery Software Solution	The eDiscovery platform must allow administrators to perform searches across the documents to include applying date ranges if necessary.	The Texuna eDisc offering incorporates multiple search facilities. This includes date ranges, custodian, and keyword searches	
Department of Finance	Finance	eDiscovery Software Solution	The system must allow for reviewers to perform sub searches within larger searches on batches of files or cases assigned to the user.	The search functionality can support multi-layered searches and filters.	
Department of Finance	Finance	eDiscovery Software Solution	The system must allow searches by metadata to include as a minimum dates, file title, author, filename and file type.	The Texuna eDisc offering incorporates multiple search facilities. This includes date ranges, custodian, file title, file name and file type and keyword searchesTexuna eDisc solution is configurable to use all metadata extracted from files in searches and filters.	
Department of Finance	Finance	eDiscovery Software Solution	Searches must allow for keyword culling,	Keyword culling is built-in feature of industry standard search engine Apache Solr that is embedded into Texuna eDisc solution.	
Department of Finance	Finance	eDiscovery Software Solution	The system must in its own right have the benefit of analytical features for as a minimum reporting, data clustering, and custodian identification.	Texuna already provides basic tools for reporting and identifying custodians. The matrix gives a unique structure and is easily filtered by a range of criteria. Searches are also dynamic and can be used to create matrix subsets. The clustering (or cluster analysis) plugin attempts to automatically discover groups of related search hits (documents) and assign human-readable labels to these groups. Custodians of a document may be automatically identified through flexible configurable rules in cases where custodian is not set explicitly.	

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Department of Finance	Finance	eDiscovery Software Solution	The review interface must be user friendly, interchangeable and must allow for tailoring to suit the reviewer allowing viewing or switching off of various panes or panels.	Texuna eDisc interface is pure web UI, developed to be user friendly and helping user to concentrate on a task. It is specially designed with large working area and minimal number of UI elements overcomplicating UI. Texuna's eDisclosure solution was built from the ground up to do away much of the complexity and confusion of multi-panel style monolithic systems typical of client-server generation technologies. The UI/UX has been transformed to give a much simpler experience while maintaining the power and flexibility of the tool.	
Department of Finance	Finance	eDiscovery Software Solution	Panels must include, at a minimum, native file review, near native viewer (to include text search within the viewing interface), document, family, metadata view and review, ability to sort results of a search using metadata, i.e. sort results by file type, or by date, or by author etc., ability to identify related documents and family documents, ability to highlight the relevant search terms within the document (especially in Excel files or documents containing large number of pages).	Texuna eDisclosure provides for near native viewing through a browser as well as ability to view offline in native apps. All the metadata is exposed, and can be used to search, filter and reorder in the document list views. This includes ability to view documents by conversation, relevance scores, near duplicates etc. Text search includes searching within large documents, images and spreadsheets. Document metadata is available to be reviewed including information about document family. The Interface allows sorting of documents using all metadata fields by file type, or by date, or by author etc. The user may open document native applications straight from search results or document review page. Near native viewing is provided by browser (Chrome, Firefox, MS Edge, MS IE are supported) and allows searching. MS office, openoffice and PDF document formats are supported.	
Department of Finance	Finance	eDiscovery Software Solution	The user interface must support tagging of records.	The system allows for the creation of case / project specific tags for application to records. These can be defined and controlled at a system administration level, or through specified user role/permissions as required.	
Department of Finance	Finance	eDiscovery Software Solution	The system must allow users to annotate records.	Texuna eDisc solution allows document/record tags and annotations. Comments may be reviewed by other users. Texuna can allow notes to be added as metadata annotations in the matrix which is managed separately from the underlying documents and objects of the search.	
Department of Finance	Finance	eDiscovery Software Solution	The annotate function must be available for redaction also.	As above notes and annotations can be added as well as customisable and filterable flags that can be used to help build up arguments in a case. Only redacted documents are created as replica versions of a document, and separate metadata can be attached to these new versions.	
Department of Finance	Finance	eDiscovery Software Solution	Where a record is tagged, an option to tag near duplicate records must be available.	Once a record is tagged it is possible to tag near duplicates. It is also possible to use "More like this" function for quick the selection of similar documents and bulk tagging them.	
Department of Finance	Finance	eDiscovery Software Solution	The user interface must allow records to be redacted including the ability to redact specific text, paragraphs, sections and whole pages.	A redaction function is incorporated that can be used to redact elements on a document by document / object by object basis. Specific text, paragraphs, sections and whole pages may be redacted. Redactions are irreversible. This is available through the creation of a replicated document with separate metadata attached. A link is maintained between the original and redacted versions. Reviewers may access the original document but only redacted version is exported for external use.	
Department of Finance	Finance	eDiscovery Software Solution	The system must allow both item level and/or family level review options depending on the specific project requirements.	Families of documents can be filtered into sub-matrices and handled as a group, quickly and efficiently.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must allow for easy review of email threads, including family and attachments. Attachments must be associated with the parent email.	When the source data is indexed, threading of email discussions is maintained, as are the association of attachments with a parent email. Search results in the matrix can be sorted by thread / sender / recipient or dates.	
Department of Finance	Finance	eDiscovery Software Solution	The system must be able to produce reports of the case statistics, user productivity and overall case progress to allow for ongoing case management.	A basic task manager allows to do lists to be created from matrix subsets and allocated to specific users for review. The task manager also allows you to quickly obtain a summary of progress, statistics of work done and work remaining. The Audit stores information on number of logins, number of tags placed by user and redactions completed.	
Department of Finance	Finance	eDiscovery Software Solution	The system must have the ability to batch documents for review and be able to assign and reassign those batches to reviewers.	As above, the task manager allows a to-do list to be created from matrix subsets, which can then be allocated to specific users or groups.	

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Department of Finance	Finance	eDiscovery Software Solution	The production phase of any eDiscovery case or investigation will require the deemed relevant documents to be produced and made available to other parties. In order to facilitate this, the proposed solution must be capable of generating production sets allowing the Contracting Authority to sort documents in chronological order, and provide means to assign document IDs to the documents within the production set.	The Texuna eDisc offering has already been used in multiple court actions in providing production sets. These sets are sortable by chronological order and document IDs are assigned.	
Department of Finance	Finance	eDiscovery Software Solution	As part of the production process, the system must be capable of generating a full document schedule or index including metadata. The fields in the schedule should not be limited, allowing the user to specify what fields are to be included and/or excluded in the schedule.	A full document index and metadata file can be exported from the system as a .csv file that can be expanded to include the information that is required.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must allow for the user to specify the fields to be included in the Schedule generated as part of the production. The potential fields to be included on the Schedule should not be limited and should include any metadata available.	Texuna eDisk Solution allows export of a full list of metadata fields. It is possible to select fields that are required in the Schedule generated. The export function allows selected objects to be exported with all relevant data into an editable spreadsheet schedule. This can be configured to meet the exact needs of the department.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must support unique document identifiers as part of the production process.	Every source object contained within the eDisc matrix has a unique document identifier which can be exported as part of the production process.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must allow for documents to be produced in a specified format including, as a minimum, excel, pdf and native.	Texuna's eDisc solution has previously been used within several litigations within the UK. Production sets for these cases have been created utilising user defined production criteria, including the types mentioned within the specifications.	
Department of Finance	Finance	eDiscovery Software Solution	The Contracting Authority requires a system administrator profile, which will have the authority to, as a minimum, create new cases, add new documents, create new roles for new users, administrate users and generate audit reports on users for monitoring.	Roles and permissions can be created to fit requirements, including the system administrator profile as required.	
Department of Finance	Finance	eDiscovery Software Solution	Full user management is required by the Contracting Authority to setup multiple users, groups and cases. Not all users will require access to all documents, therefore it is required that users can be setup with various security permissions.	Integration with legacy systems and existing ActiveDirectory user groups can respect existing permissions and assure these are applied to restrict access through search controls so that only authorised users will see or know of the existence of indexed documents.	
Department of Finance	Finance	eDiscovery Software Solution	The solution must have a full reporting functionality as well as being auditable to determine what searches are being carried out, what files are being viewed and all activities performed on the solution from an administrator, group and user level.	Solution has full audit trail registering user actions including searched, files viewed and other activities. Audit may be searched and analysed by authorised personnel.	
Department of Finance	Finance	eDiscovery Software Solution	Export or reporting of the audit logs is required.	Audit may be searched and analysed by authorised personnel. Audit may be exported based on search filters like date range, user, action etc	

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Department of Finance	Finance	eDiscovery Software Solution	Support for Irish and foreign language character indexing is required, including but not limited to, French or other European languages.	Full language support is incorporated out of the box. Texuna has experience of implementing, not only European languages, but also regional variances (e.g. Brazilian Portuguese).	
Department of Finance	Finance	eDiscovery Software Solution	The software solution licence must be sufficiently broad to permit the use of the software solution that is envisaged by this RFT, including use of the software solution by or for the benefit of the entities other than the Contracting Authority identified in Section 1 of Appendix 1.	Texuna's eDisc solution will be provided on a non-exclusive, royalty free licence for use of the software solution as envisaged by the terms of this RFT.	
Department of Finance	Finance	eDiscovery Software Solution	The software solution licence must include robust warranties in relation to the software solution, including that it will comply with the Minimum Specifications.	The Texuna eDisc solution shall be provided on the basis that all developments and provisions are created to meet and comply with the minimum specifications. Texuna shall utilise a methodology of requiring acceptance sign-off by the client of delivery under these minimum specifications.	
Department of Finance	Finance	eDiscovery Software Solution	The software solution licence must not be automatically coterminous with the Services Contract but should instead be capable of continuing in force after the Services Contract expires or is terminated early.	Texuna's eDisc solution will be provided on a non-exclusive, royalty free licence for use of the software solution as envisaged by the terms of this RFT. The term of this licence shall not be coterminous with the Services Contract.	
Department of Finance	Finance		The software solution must be compatible with Active Directory 2012, (Read Directory services account, Filter and exclude nominated areas).	Texuna's eDisc offering allows for customisable user permissions out of the box. This can easily be integrated with existing ActiveDirectory groups/roles and permissions to enable control over a user's access. An active directory authority connection is essential for enforcing security for documents from Windows shares and Microsoft SharePoint (in ActiveDirectory mode). This connection type needs to be provided with information about how to log into an appropriate Windows domain controller, with a user that has sufficient privileges to be able to look up any user's ID and group relationships.	
Department of Finance	Finance		Where any particular file type is not supported by the proposed solution, the tenderer must provide a description of how the file type will be handled in order to be processed by the platform. The Contracting Authority will expect the proposer to perform such data handling. Core file types which must be supported are: NSF, PST, OST, MS Office, zip, PDF, TIFF, SharePoint 2013 associated files.	Texuna eDisc solution is very configurable. IT is based on industry standard open source components Apache Manifold, Apache Tika, Apache Solr. Solution has built in parsers for following data formats from "Core file types" set: PST, OST, MS Office, zip, PDF, TIFF, SharePoint 2013 associated files. As noted above, NSF file type is not supported out-of-the-box but Kernel data recovery converter is used to transform data to MS Outlook format and process as using standard parser. There are 2 strategy to process not supported out of the box file type. Conversion. As noted above, NSF file type is not supported out-of-the-box but Kernel data recovery converter is used to transform data to MS Outlook format and process as using standard parser. Plug-in Texuna eDisc embedds Apache Manifold and Apache Tika text/data extraction components. These components are pluggable. Any Java code that reads particular file type may be wrapped as plugging and used by system to process data.	
Department of Finance	Finance		Full user management is required by the Contracting Authority to setup multiple users, groups and cases. Not all users will require access to all documents, therefore it is required that users can be setup with various security permissions.	Integration with legacy systems and existing ActiveDirectory user groups can respect existing permissions and assure these are applied to restrict access through search controls so that only authorised users will see or know of the existence of indexed documents.	
Department of Finance	Finance		The solution has Intelligent Character Recognition (ICR) Capability.	Yes all imaged files are automatically processed by OCR to extract any readable text	
Department of Finance	Finance		The solution has a find and an auto redact feature to redact keywords or data types (such as credit card numbers, email addresses).	Search and redaction is possible but not currently automated. Texuna can provide this functionality by go-live with a logged audit trail showing what changes have been made	

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Department of Finance	Finance		Where the redaction feature is utilised, the solution has the capability to redact in multiple colours or formats to identify reasons why the document was redacted or include information such as who performed the redaction to allow for quality assurance checks prior to production. Possible solutions may include different formats/colours or application of reason codes.	Redaction is basic, but includes ability to add annotations and metadata giving the reason fo any changes made, and an automated log of what users made the changes and when. Texuna can customise redaction formats and colours should this be required.	
Department of Finance	Finance		The solution is compatible with some/all of the following Backup Solution currently and historically in existence: (a) HP Data Protector 4.5-6.1 (b) Microsoft System Centre Data Protection Manager 2010 (c) Microsoft System Centre Data Protection Manager 2012/2012 R2.

The solution is capable of restoring backup tapes for ingestion to the software solution.

The Contracting Authority possesses a large volume (c. 21 terabytes) of backup tapes which may at some point require to be restored or a portion of same and de duped (See Appendix 2 - 2.2.6). As noted in Section 1 of this Appendix 1, the environment of the Contracting Authority's IT infrastructure is as follows:

The Contracting Authority employs an enterprise backup solution to ensure the appropriate backup and recovery services are in place. We use or have used HP DataProtector 4.5-6.1, Microsoft System Centre Data Protection Manager 2010, Microsoft System Centre Data Protection Manager 2012/2012 R2. It would therefore be of added value if the proposed solution was compatible with the below Backup Solution currently/historically in existence: ·   HP DataProtector 4.5-6.1 Data is contained on mixture of LTO 1, LTO4 and LTO 5 tapes. ·   Microsoft System Centre Data Protection Manager 2010, Data is contained on mixture of LTO4 and LTO 5 tapes. ·   Microsoft System Centre Data ·   Protection Manager 2012/ 2012 R2. Data is contained on mixture of LTO5 and LTO 6 tapes. | This can be achieved on site with the Dept staff, subject to the following: LTO 1,4,5,6 tape drives are provided by the Department. Licences for HP Data Project, Microsoft System Centre Data Protection Manager versions are shared with Texuna. texuna would assume that the Department will be involved in the process for the back-up assets themselves. | |

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Department of Finance	Finance		Please confirm how integration of the proposed solution with plug-ins referenced will be managed, including but not limited to plug-ins: Apachee ManifoldCF Pentaho Data Integration Apache Solr / Solr Cloud Apache Tika Kernal data recovery converter Please confirm if these plug-ins needs to be maintained separately to the maintenance of the parent system. And please confirm how maintenance of these plug-ins handled, including patching, upgrading etc. Please confirm support arrangements for these systems/plug-ins Please outline the process involved in updating these systems (in conjunction with the overall eDiscovery platform)	Texuna's eDiscovery solution pulls together several open source components including: Apache ManifoldCF Pentaho Data Integration Apache Solr / Solr Cloud / Tika Nucleus Kernel data recovery converter and some 3rd party components from Snowbound (RasperMaster and VirtualViewer) to provide powerful options for the enterprise. The solution is delivered in a single integrated bundle. Texuna centralises the maintenance of components and plugins, which Texuna take responsibility for as part of the overall solution support and maintenance. Each release of the solution will contain the latest versions of all components. Where a more suitable component becomes available Texuna may swap out an existing component and replace it. The patch and upgrade process is automated as a one click (one script) operation that updates all components of the solution. Texuna maintains up to date versions of all the constituent components of the solution to ensure they are included in solution patches and releases.	
Department of Finance	Finance		Please advise where in your Tender you have provided the details requested under "Project Structure" or please provide this detail if you have omitted to do so.	The project structure and escalation points are incorporated into section 6 of the main Texuna proposal document. However, for clarification these are specifically addressed below: Management of day-to-day project implementation shall be managed by our Ireland based Project Manager (Declan Collins), in conjunction with our on-site Software Lead (Kirill Feoktistov). Texuna uses a proprietary ticketing system (RedMine) to manage workflow and tasks amongst our development team that will incorporate all aspects of the implementation. Our project plan provides for 6 Texuna staff members working on site as required by the implementation phase. It has been assumed that a senior business project champion from the Department will be available collaborate with the Texuna Project Manager to assist in guiding the project decisions and make any trade-offs if required. Both the Texuna Project Manager and Contract Manager, (as identified in the project organogram) shall act as joint first line escalation points with the Texuna CEO / Project Lead (Patrick Lynch) being the top-level escalation point. This approach ensures that any issues requiring escalation will be dealt with in a timely manner.	
DfE - SA	Education	Secure Access	The proposed solution will need to be fully supported by the supplier – they will need to provide application support for the system and work with other suppliers and DfE teams where necessary to resolve incidents and outages. Tenderers must outline what the maintenance and support package includes.	Texuna will provide maintenance releases on an ad hoc basis to resolve any identified bugs. This is in addition to periodic (usually annual) upgrades and enhancements to ensure that components are the most up to date. These releases are available for free as part of ongoing support. All maintenance releases will be delivered fully packaged and documented ready for installation. Texuna ask that the Department verify all releases on Test environments prior to promotion to Production. If required Texuna can perform the releases remotely as an inclusive part of our Support service. Texuna provide full on-boarding / off-boarding documentation for the benefit of third party suppliers. This includes guides for both business and technical staff that support workshops and meetings Texuna arrange to support third party suppliers. Support for on-boarding new services and working with those suppliers is included in our installation costs for new services. Texuna commit to, and have a demonstrable success of, working with other suppliers and DfE teams to resolve incidents. This is guided by clearly defined and agreed priority definitions, escalation routes and responsibilities. All Texuna support is managed through a CRM allowing for clear audit and ownership of any service requests or incidents. Texuna's service is managed through an ISO 20000-1 British Standard Institute (BSI) certified Service Management System, and ISO 27001 BSI certified Information Security Management System. Under GCloud 8, Texuna offer a SaaS and PaaS at a fixed price per node, based on AWS where Texuna have full responsibility for maintaining the data, infrastructure and software. The GCloud offering does not match to current arrangements where the department / hosting provider take responsibility for all hardware and software management and configuration after initial setup. Texuna are happy to discuss options outside of AWS, where responsibilities and infrastructure costs may lie elsewhere.	
DfE - SA	Education	Secure Access	The proposed solution will need to incorporate a single URL for the Production environment which all users will use for sign on.	Texuna Identity Assurance and Access Management solution uses a single URL for sign on for all users of all integrated systems. The single sign on URL is also used for all roles within the solution itself.	
DfE - SA	Education	Secure Access	The proposed solution will need to be capable of interacting with the current seven linked systems via SAML 2.0 token integration.	Texuna's solution primarily uses SAML 2.0 for single sign on (although other methods are available (e.g. LDAP, OAuth2/OpenID, web-services)). Tokens are generated by the user's browser, the solution and the system being accessed. Tokens avoid any authentication or authorisation messages passing directly between the solution and system it authenticates for. The current SA implementation provides full authorisation and authentication via SAML2, with components utilised in each linked system. In addition to authentication, SAML2 payloads and web services are also used to synchronise data between integrated systems themselves.	
DfE - SA	Education	Secure Access	The proposed solution must be capable of being re- skinned to reflect Departmental branding and incorporate the 'Secure Access' system title.	Texuna applications are fully able to support brand identity and changes to branding. The Secure Access application supports cascading style sheets so that branding can, as required, be customised and changed. The current SA implementation incorporates existing DfE branding as provided previously by the Department.	

	Sector	Solution	Question	Template Response	Picture number
Intro			Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.		
DfE - SA	Education	Secure Access	The proposed solution must support web accessibility to a minimum of AAA standard. https://www.w3.org/WAI/intro/wcag	Texuna systems are compliant to WAI AA/AAA usability standards. Usability standards are rigorously enforced and Texuna has ensured that at least AA accessibility standards are implemented in all operational areas of Secure Access during the current contract. Texuna will commit to ensuring that AAA accessibility is provided and will undertake an accessibility audit prior to deployment to ensure that the accessibility and quality standards of the Department are met. Should any issues arise from this accessibility test these will be resolved to ensure that the AAA accessibility standard is fully complied with.	
DfE - SA	Education	Secure Access	The proposed solution will need to incorporate a front page capable of displaying notices about upcoming system wide events or news. This page will need to be capable of being directly amended by a DfE team.	Texuna's solution includes a built-in Content Management System which allows for the creation, editing and publishing of notifications to a front page. This provides admin users with the ability to publish news or event notices quickly and easily. Notices can be created and saved without publishing, allowing users the opportunity to review prior to wider publication. All news items (both historic and current) are available to view or edit within the system, allowing admin users to easily re-publish an item if needed. This is especially useful for recurring items which need to be displayed periodically. The full history of events also provides an audit record of all notices that have been displayed in the past.	
DfE - SA	Education	Secure Access	The proposed solution will need to incorporate a dedicated section of online guidance, capable of displaying user guidance for End Users and Approvers. These pages will need to be capable of being directly amended by a DfE team.	Texuna's solution supports a dedicated section for online guidance. The content of the guidance page can be created and maintained by a DfE team as required. Content changes do not require any specialist technical skills or downtime. This allows for solution users to be presented with a range help guides, links and resources that can adapt and change over time ensuring needs are constantly met.	
DfE - SA	Education	Secure Access	The proposed solution will need to include a High Availability resilient cluster, which would include a Maintenance Mode, to enable Zero Downtime deployments.	Texuna's solution supports Zero Downtime Deployments through a maintenance mode. This operates as follows: 1. The solution is placed into maintenance mode immediately prior to deployment. 2. The maintenance mode allows users to login, authenticate with external systems and review static pages. Users will be prevented from carrying out write operations (e.g. creating/editing accounts, resetting passwords, etc). 3. Deployment then proceeds as follows: a. Snapshots are taken of database & application servers. b. Maintenance mode is enabled on application servers. c. Each application node is updated in turn. The database is then migrated to new version. d. Testing carried out to confirm changes (i.e. smoke testing). e. System reverted out of maintenance mode and deployment is complete.	
DfE - SA	Education	Secure Access	The proposed solution will need to support both single factor authentication (single sign on) and two factor authentication. For the two factor authentication this should comprise: One factor being an account One factor being using a physical token/alternative method	Texuna's solution supports Single and Multi-factor authentication(MFA). MFA is recommended best practice for securing user data. Principal factors used are: · Knowledge factor=Password/PIN. · Possession factor=Software/physical token. (Inheritance factors may also be considered after further discussion). Considering SA's user base/roles, software tokens are recommended, as: · Significant savings on MFA hardware/set-up/distribution costs. · Future-proof and highly scalable. · No additional sensitive information required. · Un-intrusive. · Usability, portability, security needs are met. · Flexible processes can be used around revocation and assignment. (Physical tokens can be used as an alternative, with NFC and QR code stickers providing excellent value for money).	
DfE - SA	Education	Secure Access	The proposed solution will need to automatically log users out following 20 minutes of inactivity	Texuna's solution automatically logs users out after a defined period of inactivity. Users are directed to re-authenticate after automatic logout. The current SA implementation is configured with a timeout period of 20 minutes. Although not expected, it should be noted that this period can be amended as required.	
DfE - SA	Education	Secure Access	The proposed solution must be able to support up to 2000 password resets per hour.	Texuna's solution supports up to 2000 password resets per hour. Regular performance testing is carried out on the DfE's SA implementation. This additionally includes high load password reset scenarios, such as adding new users, Approver claim, new password selection process. These process have a total sum of ~ 2600 password operations per hour 'out of the box'. This performance exceeds requirements, and can be further improved. Texuna's solution is fully scalable by design, adaptable as user demands change. Database and application nodes can be dynamically added to the hosting environment to allow the solution to scale in accordance with needs.	
DfE - SA	Education	Secure Access	The proposed solution will need to comply with the DfE's security policies – full security assurance will be required – the supplier will need to work with the Service Owner and DSU to satisfy any security policies via the Departmental Security Assurance Model (DSAM) process.	Texuna have a strong track record of supplying services to the public sector and to the Department of Education. We are certified to ISO 27001 to cover all of our operations by our external auditors BSI. We maintain a high standard of management and control of systems and data through the processes that are followed. As a supplier to the DfE, Texuna will commit to complying with the DfE Security Policies and the Departmental Security Assurance Model process. We will work closely with the DfE Security Officers to provide any necessary evidence of our compliance. We have a track record of completing the DfE audits for RMADS assessments and have always been able to prove that our internal systems are sufficiently robust to satisfy DfE security requirements.	
DfE - SA	Education	Secure Access	The supplier will need to comply with DfE's incident, roblem and change management processes.	Texuna is certified by the British Standard Institute for conformance to ISO 9001, 27001 and 20000-1 for Quality Management, Information Security Management, and Service Management. As the incumbent supplier, Texuna have aligned and documented their processes to comply fully with the DfE's processes. A full history of requests for change, incident tickets/report and associated documentation can be supplied as required.	

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DfE - SA	Education	Secure Access	Training must be provided by the supplier to the relevant DfE teams prior to the deployment of the proposed solution.	Texuna is able to provide comprehensive training sessions supported by full documentation. We have the necessary skills and experience to ensure that a complete knowledge transfer is accomplished to equip DfE staff with the knowledge they need to operate the solution. Texuna is also able to help establish a set of standard procedures for responding to standard user requests as part of the end-user training if required. We take a pro-active approach and have initiated training sessions for new DfE service desk staff to ensure that the SA operates effectively for all stakeholders.	
DfE - SA	Education	Secure Access	The supplier must offer support for their solution based on ITIL (v3) best practice (which includes both telephone and e-support at a minimum) for the duration of the contract. Please note that this is support given directly to the DfE help-desk and not end-user support (which will be handled internally).	Texuna has embraced the ITIL v3 standard and the principles of ITIL are embedded in the way that we provide services to our clients. Our external auditors BSI certify us to the ISO 20000-1 Service Management standard for all our operations and this standard embraces ITIL. The Texuna service desk has established systems and processes that have been thoroughly tested. We have a track record of five years of support services for the SA project in addition to support for other DfE projects. Our service operation systems include a dedicated CRM, VoIP integrated systems, mail systems and issue tracking and resolution systems used to manage the technical support for this project. Technical queries may be received either by dedicated telephone helpline or by e-mail, and will result in an issue being raised in our CRM system so that the query can be followed through to a satisfactory conclusion.	
DfE - SA	Education	Secure Access	The supplier must include a statement agreeing to provide technical support to customers during installation, configuration and testing of the supplier's software (and hardware) during the test/evaluation phase if required.	Texuna do agree to provision of direct technical support to customers should this be required. We will be pleased to discuss the requirements and work with the Department to ensure that all installation, configuration and testing is concluded successfully during the testing phase.	
DfE - SA	Education	Secure Access	The supplier must describe any partnerships or subcontractors they would engage to deliver the solution. Where appropriate tenderers MUST include the Terms and Conditions of 3rd party software products and confirm that such software is fully integrated with the tender's software product.	The work to deliver the Solution as defined by the statement of requirements will be performed by Texuna staff. Texuna policy is not to employ sub-contractors to perform tasks offered within this contract. All work will be performed by Texuna employees all of whom have an employment contract with the Company.	
DfE - SA	Education	Secure Access	The supplier must identify how they will assist the department in migration of the service from its current location to a revised hosting platform.	Texuna commit to: · ensuring that any migration of hosting is efficient and effective. · engaging in planning stages and actively assisting and training so any new hosting partner are equipped to operate SA. We envisage a similar level of support to a new hosting partner as for Eduserv. If possible, additional environment access for Texuna would assist with ongoing support. · Provision of full training and documentation, and support during deployments. We recognise that SA is a critical operational system and quality and completeness of hosting and support services are key in the overall success of the project	
DfE - SA	Education	Secure Access	The supplier should identify any opportunities for them to host the service themselves and provide it as a service to the department, identifying all associated costs with migration and future consumption of the service.	Texuna host projects for the department both on our private cloud and using Amazon Web Services. We are also able to offer hosting on Azure. We provide these services on a fully managed hosting basis. We have provided costs for migration services to each of AWS, Azure and private cloud in the pricing section at 2.2 below. We guarantee that our hosting is provided within the EEA only and that security considerations are fully complied with so that the department's data is fully protected. Texuna will comply with any timelines that the department may specify for hosting migration.	
DfE - SA	Education	Secure Access	The proposed solution must offer the users a choice of at least three Machine-Generated complex passwords, as an alternative to user-entered passwords.	The current SA implementation of Texuna's Identity Assurance and Access Management solution offers users a choice of 7 Machine-Generated complex passwords. The rules for these passwords are defined by the Department. If necessary, these rules can be altered by user with the highest level of access via the solution's backoffice portal (e.g. uppercase, lowercase, numeric and symbol requirements. Definitions of allowable symbols).	
DfE - SA	Education	Secure Access	The proposed solution must be capable of enforcing password resets based on a number of business rules, such as: time-based, (all passwords should expire after 100 days) suspected compromise, initial login (user's must reset their password on first login)	The current SA implementation of Texuna's Identity Assurance and Access Management solution enforces password resets on a defined periodic based (currently set to 100 days). New user accounts are required to generate a new password on initial login. In addition, a PIN and password process supports a highly secure account claim procedure that can use dual channels. Any potentially suspicious activity leads to a locked/frozen account. For instance, multiple failed login attempts or resets within a day reflective of a brute force attack. Lastly, the defined time periods and number of fails/resets can be set through the solution backoffice portal.	
DfE - SA	Education	Secure Access	The proposed solution must ensure all passwords and user details are stored in an encrypted format, using FIPS140-2 in conjunction with encryption algorithms permitted under the FIPS140-2 standard as a minimum.	Texuna's solution enforces encryption of passwords and user details in the database. Texuna have worked with the DfE's DSU to implement encryption in a number of ways, based on the information stored. User details encryption uses AES-128 cipher. Passwords have enhanced security, with a SHA-2 (SHA-512) encryption algorithm and a unique salt value applied. This results in an estimated brute force attack time of 4 years minimum. In both cases, requirements of the FIPS140-2 standard are met and exceeded. Texuna are also very happy to work with DSU again to ensure security is paramount.	

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	Sector	Solution	Question	Template Response	Picture number
DfE - SA	Education	Secure Access	The authentication provided by the proposed solution must be available via a secure web browser and use SSL v3 protocols. However, backwards-compatibility with SSL v2 must be provided (and this element should be capable of being disabled). The SSL implementation shall use FIPS140-2 in conjunction with encryption algorithms permitted under the FIPS140-2 standard as a minimum.	Texuna provides for the support of SSL as a configuration option. Specifically for SA: • SSL support is configured when the server is installed by adding the supported standard methods in the installation script. • Support for SSL version 2 and version 3, together with other protocols, is specifically enabled. • Protocol support is separately enabled for each application through the server configuration. • Texuna's system installation procedures also includes full support for Transport Layer Security (TLS). This is included as this protocol fully conforms to the FIPS 140-2 standard as required by the Department, and incorporates increased key strength	
DfE - SA	Education	Secure Access	The proposed solution will need to incorporate system rules that, as far as possible automatically links organisations to the currently seven connected systems following agreed DfE business rules.	Texuna's solution allows for user access to connected systems to be automatically granted, or explicit assigned based on a set of agreed DfE business rules. Texuna have worked with the DfE to implement some 80+ rules over the last 3 years that support automation and reduce burdens. Business rules are fully managed via a backoffice portal, by users with the highest level of permissions. Any Organisation/User/Role (Group) attributes can be used with range of flexible operators (e.g. is/is not, greater/lesser than, is null, etc). A backoffice user can create/modify roles and rules at any time without development or application restarts/deployments.	
DfE - SA	Education	Secure Access	The proposed solution will need to support different types of account status – active and inactive accounts. Accounts that are not logged into for a configurable period (currently 120 days) should automatically become inactive	Texuna's solution supports multiple account statuses, with the ability for accounts to become inactive after a period of inactivity has been reached (120 days). This period can be changed/managed via a backoffice portal, by users with the highest level of permissions, without development or system restarts/deployments. The following account statuses exist as standard: · Active (accounts that have full use of system, based on their permissions) · Archived (accounts that automatically become inactive after a period of inactivity, or manually set to archived local administrator user) · Awaiting user activation (accounts that have been created, but the activation process has not been completed) · Imported (accounts imported from legacy systems, but the account claim process has not been completed) · Locked (when the solution identifies suspicious activity on an account) · Password expired (accounts that have not reset their password within the defined period of time)	
DfE - SA	Education	Secure Access	Full audit histories for all transactions must be maintained and be accessible/viewable to authorised individuals for monitoring purposes	A full audit history of all transactions is supported. This is displayed to authorised users supported by a searchable audit log, allowing authorised users to filter for specific records and events (e.g. Dates, Event type, Entity ID (i.e. a specific user/organisation), Actor (e.g. the user who edited a record)). In addition: Full version histories are maintained on records such as users, organisation and roles. Additional resources statistics, connections, web application info (e.g. Live sessions) is available via the UI. Further audit details are maintained within database tables and system logs, should deeper investigations be required.	

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DfE - SA	Education	Secure Access	To provide an Approver role to be assigned to an identified individual in each organisation accessing any of the current seven systems that Secure Access provides access to. Approvers will need the ability to: Search for End Users within their organisation including non-standard (NS) users. Add new End User accounts within their organisation (up to a limit of 6 accounts in Establishments and 500 in Local Authorities) View End User accounts within their organisation Edit existing End User accounts within their organisation, including granting access to the seven linked systems Generate a password reset request on behalf on the End User accounts within their organisation. Generate a new activation email on behalf of End User accounts within their organisation Archive End User accounts within their organisation Transfer the Approver role to another user account reverting the original Approver account to normal end user status.	Texuna's solution provides an Approver role(s), acting as a devolved local administrator for each Organisation. The number of Approvers is organisation type specific (e.g. a Local authority could have more Approvers than a School). The number of Approvers is fully configurable via a UI. Approvers have the ability to (within their own organisation): Search for users Add new users Edit existing users Assign users access to applications (the allowable applications are defined by business rules, preventing an approver from inadvertently granting access to a disallowed application for their organisation type) Update user statuses (e.g. manually archive/un-archive account, unlock accounts, etc). Reset user's password Resend new user's activation link Transfer the approver rights to another active user within organisation. This will switch the original approver's account to an end user account and will update the new approver's account to have access to any applications the original user already had access to. (150 word limit)	
DfE - SA	Education	Secure Access	To provide an Admin role within DfE to allow for administration of Secure Access accounts. Admins will need the ability to: Search for End Users within all Secure Access organisations. Add new End User accounts within any organisation (up to a limit of 6 accounts in Establishments and 500 in Local Authorities) View End User accounts within any organisation Edit existing End User accounts within any organisation, including granting access to the seven linked systems Generate a password reset request on behalf of any End User accounts. Generate a new activation email on behalf of End User accounts within any organisation Archive End User accounts within any organisation Transfer the Approver role to another user account reverting the original Approver account to normal end user status.	Texuna's solution provides an Administrator role. This is used for administrators to manage users, organisations and access to applications. Administrators have the ability to (across all of Secure Access organisations): Search for users Add new users Edit existing users Assign users access to applications Update user statuses Reset user's password Resend new user's activation link Transfer the approver rights to another active user within an organisation. Create/amend group permissions, which define whether a user/organisation can be allowed access to a specific linked application. In addition to the Administrator role, a '3rd Party Support' role exists for users who need to monitor system behaviour and performance. Audit logs, SAML and web service request can be viewed, but the ability to add, edit or view user accounts is restricted.	

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	Sector	Solution	Question	Template Response	Picture number
DfE - SA	Education	Secure Access	To provide an Super Admin role within DfE to allow for administration of Secure Access accounts. Super Admins will need the ability to: Search for End Users within all Secure Access organisations. Add new End User accounts within any organisation (up to a limit of 6 accounts in Establishments and 500 in Local Authorities) View End User accounts within any organisation Edit existing End User accounts within any organisation, including granting access to the seven linked systems Generate a password reset request on behalf of any End User accounts. Generate a new activation email on behalf of End User accounts within any organisation Archive End User accounts within any organisation Transfer the Approver role to another user account reverting the original Approver account to normal end user status. Amend system rules relating to their linked service only	Texuna's solution provides for a Super Administrator role. This can be used by DfE administrators to manage users, organisations and access to applications. Super Administrators have the ability to (across all of Secure Access organisations): Search for users Add new users Edit existing users Assign users access to applications Update user statuses Reset user's password Resend new user's activation link Transfer the approver rights to another active user within an organisation. Create/amend group permissions, which define whether a user/organisation can be allowed access to a specific linked application. In addition to the regular admin task available, Super Administrators also have access to the system settings, including: Managaing time period of password expiry Managing time period before accounts expire Defining symbols allowed/prevented from appearing in passwords Setting account limits (i.e. the number of users of a particular role type allowed per organisation type)	
DfE - SA	Education	Secure Access	The seven systems that Secure Access currently provides access to can retain their local username and password databases and the proposed solution must facilitate updates to these (e.g. create user, update password, close user).	Texuna's solution allows for synchronization of user data thorough: Full authentication and authorisation within the IDP, facilitated by groups (roles) and SAML2. Linked systems would not need to maintain local user details, all updates are managed within the IDP. IDP authentication, linked system authorisation. Linked system maintain local copies of user details updated (web service calls (CREATE/ UPDATE)) as changes are processed within IDP. WSDL file is supplied to automatically build web services required. Please note Passwords should not be transmitted external to the IDP. Texuna's solution does not prohibit complimentary local authentication and access mechanisms if needed.	
DfE - SA	Education	Secure Access	The proposed solution should send the user's credentials (or an authentication token) to the linked system being accessed by that user.	Texuna's solution uses SAML2 to send a cross-system session token as authorisation when user logs in. The details contained within each SAML response sent to each integrated systems is configurable and can be system specific. This can range from very basic information (e.g. just username) to very detailed information (e.g. all user details, all of the user's organisation details, all of the users roles, etc).	
DfE - SA	Education	Secure Access	The proposed solution should ensure all changes to the local username and password databases on the linked systems are complete before confirmation is given to the user once a password is changed.	Texuna's solution facilitates the update to local username and password databases, and will ensure that updates are completed prior to issuing confirmation to the user. Changes made which affect systems with local username/password databases will trigger web service calls to those systems to ensure they are synchronised at all times. These web service calls must be confirmed as successful before the user received confirmation of password change. This applies for all changes to user details, regardless of user type who requested change (end user, approver, admin, super admin).	
DfE - SA	Education	Secure Access	All usernames and passwords from the linked systems must be recognised by the proposed solution and be capable of being imported into the new system.	Texuna's solution supports the import of user details from any legacy system as part of the initial integration. The DfE's SA implementation already contains the user details of all linked systems. The steps below apply to any new systems due to be added (on-boarded) in the future. Texuna's data cleansing and data matching experience is used to ensure a smooth transition, actions are taken to prevent duplication. Details not meeting standards have an exception placed against them. This can allow for non-compliant details to be stored. The standard account claim process ensures details (e.g. passwords) are set to DfE standards.	
DfE - SA	Education	Secure Access	The proposed solution should provide a "reminder" web-service to display a message on the "your application" page of user accounts. The service must be capable of interacting with linked systems via SAML messaging and the existing EduBase SAML service.	Texuna's solution has a reminder web service that allows for the creation of announcements messages displayed on a "your application" webpage. Messages are triggered by associated systems calling the web service and result in a published message displayed to users/organisations defined in calls. Further calls remove messages or an expiration period is set when publishing. The service can also control user interactions with linked systems via SAML messaging. Calls can trigger SAML responses to direct users to the "your application" webpage, opposed to particular system endpoint. These restrictions, and the web service itself, are fully configurable in a backoffice UI.	

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DfE - SA	Education	Secure Access	The proposed solution should provide the option to create and edit reminder messages via the UI.	Reminder messages (announcements) can be created within both linked systems (via the web service calls) and the Texuna solution itself. User with the highest levels of permissions can: • Create reminder messages (announcements) • Also edit existing messages (including publishing/un-publishing as required). • Configuring/creating/disable reminder messages web service via the UI. • Un-publish all announcements from a particular system if needed. A set of success and failure messages ensure that although management is through both linked systems and the Texuna solution, reminder messages (announcements) and their status (publish/unpublish) stay synchronised.	
DfE - SA	Education	Secure Access	Full audit histories for all transactions must be maintained and be accessible/viewable to authorised individuals for monitoring purposes	SA maintains a full audit history of all transactions that occur on the system (create, read, update, delete). The audit history is created and maintained for such transactions within the system, and stored within its database. The audit trail contains information such as: Username of the user who initiated transaction. Timestamp for when transaction was initiated. Type of transaction Etc SA includes a full audit history for the following system views: User view Group view Roles view Admin view The audit trail contained within SA relates to all changes made within the SA environment. Once an SA user accesses EduBase all further actions (within EduBase) are recorded within EduBase's own audit record. Should a change actioned in EduBase result in an update to SA (e.g. editing establishment details), then this would be captured in SA audit log as a an update received via web service.	
DfE - SA	Education	Secure Access	The proposed solution should have the ability to restrict and un-restrict access to linked systems based on the status of the web-service together with the option to remove all restrictions via the UI.	Texuna's solution restricts/un-restricts access based on the status of the web-service. Access to linked systems is restricted through: • Administrator configuration of linked systems settings (e.g. end points/landing pages altered or simply disabled if needed). • Administrator configuration Group Access Rules (business rules) defining what access is permissible for a user/organisation. • The Status of web service calls to linked systems (e.g. if user records have synchronised successfully). • Reminder web service messages (announcements) (the announcement can request access is restricted / unrestricted). In all cases above, access can also be un-restricted through the backoffice UI.	
DfE - SA	Education	Secure Access	The proposed solution must provide reports of user logon/activity – ability to see when last logged on.	Texuna's solution provides super admin users with real-time access to current user activity and open sessions. In addition, admin users can review access to applications (both the solution itself and linked systems) on an aggregate basis or an individual user basis, as needed at any time through a range of powerful search filters. This allows for easy identification of when a user last logged on and their activity. Data can also be exported from the solution, via the backoffice UI, for investigation or further analysis offline as needed.	
DfE - SA	Education	Secure Access	When an organisation closes and is set to 'Closed but active' in the proposed solution, its connected user account/s will remain active, and able to be authenticated for access to Customer Applications, and the organisation record in COLLECT stays as status 'Open'. After 6 months when the organisation is automatically set to 'Closed', its connected user account/s will automatically become 'Archived' and will not be authenticated for access to Customer Applications. A SAML update will be sent to COLLECT, so the organisation status is set to 'Closed' and all of the linked users are disabled.	Organisation status may be managed: Manually via the UI. Master records for certain organisation types are maintained within the solution. As read only via the UI, with master records managed elsewhere and synchronised (e.g. Trusts and establishments, from EduBase). Organisation status may take the values: "Closed, but active", where users retain access to systems. An automatic update is then processed after 6 months, setting the status to Closed and removing users' access to systems "Closed", where users access to systems is removed. Any change to users/organisations/groups can be synchronised via a dedicated COLLECT web services.	
DfE - SA	Education	Secure Access	The proposed solution must ensure organisations of 'Proposed to open' status must not have access to COLLECT	Organisations can be managed as Proposed to Open through the methods listed above (they are displayed in the same way once created). Business rules that govern system access can be tailored to meet the specific needs of each particular system. This means that the rules for COLLECT can be set to disallow access for users linked with Proposed to Open organisations. When an organisation status is updated to Open, users can access COLLECT provided all other rule criteria are met. It should be noted that these rules are fully managed via the backoffice user interface without development or downtime required.	

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	Sector	Solution	Question	Template Response	Picture number
DfE - SA	Education	Secure Access	The proposed solution must ensure that, when a school converts to an Academy, a new organisation is created in the proposed solution with the same LAestab but different URN. The SAML update to COLLECT should not trigger a new organisation record in COLLECT, but should set the Academy flag. Both the original and new organisation will map to the COLLECT organisation and the proposed solution users will continue to have access as specified. When the original school is marked as 'Closed' in the proposed solution, there is no corresponding update to COLLECT.	Establishments converting to Academy are processed on EduBase, and updates are then received via web services calls. This will result in the original record being updated to Closed, but active and a new SA record being created for the Academy. Both records will be syncronised with COLLECT. User records are not expected to be reallocated between organisations automatically. However, they may be moved manually as required. This will allow COLLECT to map both organisation records to the same COLLECT record. Provided the Academy Converter remains Open the associated COLLECT record will also remain open.	
DfE - SA	Education	Secure Access	The proposed solution should have the ability to restrict and un-restrict access to S2S based on the status of the web-service together with the option to remove all restrictions via the UI.	Texuna's solution restricts/un-restricts access based on the status of web-services. Access to linked systems is restricted through: • Administrator configuration of linked systems settings (e.g. end points/landing pages altered or simply disabled if needed). • Administrator configuration Group Access Rules (business rules) defining what access is permissible for a user/organisation. • The Status of web service calls to linked systems (e.g. if user records have synchronised successfully). • Reminder web service messages (announcements) (the announcement can request access is restricted / unrestricted). In all cases above, access can also be un-restricted through the backoffice UI.	
DfE - SA	Education	Secure Access	Only Schools, not including colleges, should be able to access the S2S school service.	Business rules that govern system access can be tailored to meet the specific needs of each particular system. This means that the rules for S2S can be set to only allow access for users linked with Schools (Establishments), not including colleges. It should be noted that these rules are fully managed via the backoffice user interface without development or downtime required. Should this rule need to change in the future, then the rule can easily be amended as required.	
DfE - SA	Education	Secure Access	The proposed solution must allow organisations of 'Open', 'Closed but active' and 'Proposed to open' status access to S2S.	As above, business rules that govern system access can be tailored to meet the specific needs of each particular system. This means that the rules for S2S can be set to only allow access for users linked with organisations with a status of 'Open', 'Closed but active' and 'Proposed to open'. It should be noted that these rules are fully managed via the backoffice user interface without development or downtime required. Should this rule need to change in the future, then the rule can easily be amended as required.	
DfE - SA	Education	Secure Access	When an organisation closes and is set to 'Closed but active' in the proposed solution, its connected user account/s will remain active, and able to be authenticated for access to Customer Applications. After 6 months when the organisation is automatically set to 'Closed', its connected user account/s will automatically become 'Archived' and will not be authenticated for access to S2S.	Organisation status may be managed: Manually via the UI. Master records for certain organisation types are maintained within the solution. As read only via the UI, with master records managed elsewhere and synchronised (e.g. Trusts and establishments, from EduBase). Organisation status may take the values: "Closed, but active", where users retain access to systems. An automatic update is then processed after 6 months, setting the status to Closed and removing users' access to systems "Closed", where users access to systems is removed and accounts are archived. Any change to users/organisations/groups can be synchronised via a dedicated S2S web services.	
DfE - SA	Education	Secure Access	The proposed solution must allow groups and GAR set up and, dependent on whether the group is selected for users in the proposed solution, to control User Only Schools, Local Authorities, DfE and non-standard users should be able to access the KtS.	Business rules that govern system access can be tailored to meet the specific needs of each particular system. These rules (GARs) are applied to Groups within the solution that represent roles. This means that Groups and GARS can control access to KtS for solution users, User Only Schools, Local Authorities, DfE and non-standard users. It should be noted that these rules are fully managed via the backoffice user interface without development or downtime required. Should this rule need to change in the future, then any rule can easily be amended as required.	
DfE - SA	Education	Secure Access	The proposed solution must allow organisations of 'Open', 'Closed but active' and 'Proposed to open' status access to KtS.	As above, business rules that govern system access can be tailored to meet the specific needs of each particular system. This means that the rules for KtS can be set to only allow access for users linked with organisations with a status of 'Open', 'Closed but active' and 'Proposed to open'. It should be noted that these rules are fully managed via the backoffice user interface without development or downtime required. Should this rule need to change in the future, then the rule can easily be amended as required.	

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Intro			Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.		
DfE - SA	Education	Secure Access	When an organisation closes and is set to 'Closed but active' in the proposed solution, its connected user account/s will remain active, and able to be authenticated for access to Customer Applications. After 6 months when the organisation is automatically set to 'Closed', its connected user account/s will automatically become 'Archived' and will not be authenticated for access to KtS.	Organisation status may be managed: Manually via the UI. Master records for certain organisation types are maintained within the solution. As read only via the UI, with master records managed elsewhere and synchronised (e.g. Trusts and establishments, from EduBase). Organisation status may take the values: "Closed, but active", where users retain access to systems. An automatic update is then processed after 6 months, setting the status to Closed and removing users' access to systems "Closed", where users access to systems is removed and accounts are archived and will not be authenticated for access to KtS.	
DfE - SA	Education	Secure Access	The proposed solution must provide access to these main IEX capabilities: Web Portal, Calendar, Knowledge Centre (for Q&As), Document Exchange, UPM (Contact information for users which has a manual interface to CRM).	The current implementation for IEX caters for 1 system link (https://efa-information-exchange.education.gov.uk). If this need to be expanded, it can easily be managed via the onboarding process. Onboarding is the tried and tested process followed to add new systems to the solution. This provides for updates to be made to each of the dev, UAT & production environments. Since the original project initiation, the DfE's SA implementation has more than doubled the number of links through various onboardings, with some onboardings being processed and in Production use in as few as 5 weeks.	
DfE - SA	Education	Secure Access	The proposed solution must be able to meet the needs of the new Data Exchange system by providing access to user accounts as well as system level accounts to enable unattended machine to machine data transfers.	It is expected that the needs of the new Data Exchange system and its users can be understood and met through the existing onboarding process. Onboarding is the tried and tested process followed to add new systems to the solution. Texuna foresee no concerns around system level accounts to enable unattended machine to machine data transfers. This requirement will need further exploration, but a similar mechanism has been implemented within the EduBase system integrated with SA.	
DfE - SA	Education	Secure Access	The proposed solution must have configuration capabilities to disable accounts after 3 unsuccessful attempts	Currently Texuna's solution provides for a global setting for failed logins before an account is locked. This is configurable via the backoffice UI and for the DfE SA implementation is set at 7. This can be updated to 3 as needed. The number of permissible failed logins attempts can also be implemented on a system-by-system basis. However, an impact analysis is recommended. Texuna are very happy to assist, and recommend that global limits Vs individual system scenarios are understood. For instance: Data Exchange is set as 3, another system is set as 7 (as per global). User attempts 5 unsuccessful logins on another system, account remains active. User then attempts 2 unsuccessful Data Exchange logins. Now the account has reached the global limit but not the Data Exchange limit. Exploring such edge cases will ensure a clear well defined process for end users and the DfE's SA service desk.	
DfE - SA	Education	Secure Access	The proposed solution must have ability to specify varying degrees of timeout	Texuna's solution provides for a global timeout limit of 20 minutes. Individual system may also set their own timeout limit once a user has accessed their system. Following DfE's DSU guidelines, this has been 20 minutes for all systems integrated with SA. After 20 minutes of inactivity, a user must re-authenticate before they can proceed. If Data Exchange's needs are for limits to apply on a system-by-system and user-role-by-user-role basis, with the ability to configure the limits, this can be explored. Consideration would need to be given to roles that are shared between systems (e.g. Approver, End user,) and the global timeout value. A fundamental condition is that no system could have a timeout value that exceeds the global level for the user role in question	
DfE - SA	Education	Secure Access	The proposed solution must allow existing SA users access to the CDC system via SAML 2.0.	It is expected that the needs of the new CDC system, any new users, and allowing existing SA users access can be understood and met through the existing onboarding process and SAML2 protocols in place. Onboarding is the tried and tested process followed to add new systems to the solution. Texuna provide full on-boarding / off-boarding documentation for the benefit of third party suppliers. This includes guides for both business and technical staff that support workshops and meetings Texuna provide to support third party suppliers. Support for on-boarding new services and working with those suppliers is included in our installation costs for new services.	
DfE - SA	Education	Secure Access	The proposed solution must be capable of interacting with CDC system via SAML 2.0 messaging service.	Texuna's solution provides full authentication and authorisation of users via SAML2. This will require a SAML2 component to be deployed to the CDC system which, once deployed, will provide Single Sign On via the use of a cross-system session token. In addition to authentication and authorisation SAML2 payloads are also used for the synchronisation of user data including roles/groups/organisation data. Texuna have years of experience on boarding numerous systems with distinct needs and look forward to engaging with the CDC system team.	
DfE - SA	Education	Secure Access	The proposed solution must pass high level information such as URN, School/Organisation name, School/Organisation type, user's name, user's email address etc. to the online form.	Texuna's solution allows for user/organisation/role/group data to be delivered in SAML2 payloads. The current list of fields available for SAML2 responses include fields such : Username User's first and last name User's email address Organisation name Organisation type Type of establishment, URN, DfE number, age range, (if organisation is an establishment) If a value is not currently available, then this can easily be added to the allowable attributes which can be transmitted via SAML2.	

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	Sector	Solution	Question	Template Response	Picture number
Dublin Airport	Transport	Integration platform	What are the major trends in the integration platform market as you see them, now (0-3 years), please outline how your product supports these trends?	Traditionally there have been three types of vendor in the ETL value chain. These are ETL integration tool vendors, data engineering or master data management vendors, and Business Intelligence and analytics vendors. A recent trend that continues to develop is that of vendors in each area adding functionality across this value chain. Pentaho is theonlycompany to already have a full end-to-end set of capabilities across all area of this functionality, with the ability to incorporate big data and data lakes as well as traditional ETL-DW-BI data flows. Having one platform based on Pentaho allows our customers to access the functionality of ETL, Data Engineering, Data Science and Analytics within a single platform, today. This minimises technical complexity and cost through use of a single vendor and single integrated product suite. It also provides a scalable platform for future requirements that allow cloud APIs, IOT and realtime streaming to be incorporated into a wider yet fully secured enterprise data architecture.	Pic 24
Dublin Airport	Transport	Integration platform	What are the major trends in the integration platform market as you see them, into the future (3-7 years). Please outline how your product and/or future roadmap will support these trends?	There is a longer-term trend, which has been developing for a number of years and will continue, in needing to support not just traditional relational databases as data sources, but also new emerging technologies. The emergence of Big Data through Hadoop and NoSQL has given rise to a number of additional technologies, each with its own integration mechanism, that must be brought in to the data integration landscape. Pentaho was built for this exact use case, meaning our functionality is well tested in this area. The rise of JSON and XML payloads which vary in schema, RESTful web services and micro services, and messaging protocols all have the same data integration need. Pentaho has support for all of these service types as standard. Pentaho allows for visual integration of these systems in a drag and drop visual environment with zero coding. Transformations within Pentaho Data Integration (PDI) can also be parameterised for maximum re-use with abstraction levels. This is achieved using our Metadata Injection feature, increasing re-use of standard transforms and levels of abstraction across multiple data flows. Metadata injection also supports version-managed transformations applied to different schema variations concurrently, giving maximum flexibility (e.g. where B2C app users may have different app versions with different data structures at the same time).	
Dublin Airport	Transport	Integration platform	What is the unique value your product and company offer, compared to your main competitors?	Texuna is a vendor neutral data innovation business. We have partnered with Pentaho as they support the open data and open source ethos, and because we have created a metadata injection framework that allows deployments to be simplified and scalable to hundreds of sources and target destinations, on-premises or on the cloud, with well architected orchestration of all flows. The unique value of Pentaho lies in several areas: 1 - end-to-end, fully integrated platform spanning data integration, data engineering, data science, exposing data services, and in to Business Intelligence, Analytics and reporting provides a full range of functionality typically required when performing data integration. 2 - Pentaho is a multipurpose integration platform. It was built not only to integrate with relational databases, but also to new and emerging technologies and standards. Full support is included for Hadoop (e.g. Cloudera or HortonWorks), a variety of NoSQL databases, JMS/MQ, and RESTful services and micro services. XML and JSON are both fully supported within Pentaho Data Integration (PDI). 3 - Execution of transformations can happen on a single machine, a highly available cluster of Pentaho, or even in a Spark cluster – all without leaving the visual UI or the need to code. In short, Pentaho is futured proofed against emerging data integration challenges and has an architecture flexible enough to support lots of extensibility and local customisation in future.	
Dublin Airport	Transport	Integration platform	daa wish to support the existing integration patterns in a robust manner and also facilitate new patterns as they become more prevalent across the organisation. These include: Application to Application integrations Database/file based integrations Data Replication/Synchronisation Real Time Data (Streaming) integrations Legacy Systems/Proprietary systems integrations Mobile application integrations and microservices Internet of Things (IoT) integrations Please provide details on how your product (s) can help daa achieve any, or all, of the above. Please confirm that supported integration patterns are achievable across delivery boundaries. Internal to External Systems External to Internal Systems Internal to Internal Systems External to External Systems	The Pentaho Platform fully supports all of the above usage scenarios. With over 95 plugins out-of-the-box, integration to legacy or cloud systems is highly assured. Third party (both free and paid for) connectors are also available on the marketplace. The extensible plugin nature of Pentaho Data Integration also means you can create your own bespoke connectors, ensuring that the platform can integrate to a very wide array of systems. As an example, Hitachi Rail Europe uses Pentaho to collate sensor data from its trains in use in the UK and throughout Europe. Over 2,000 sensors ineachtrain regularly report back the status of all systems on the train. This is an IoT use case that uses Pentaho Data Integration (PDI) to help provide predictive maintenance and live monitoring for the rail fleet – disrupting the Hitachi rail business model from train delivery to successful passenger trips. Caterpillar Marine uses Pentaho in a similar fashion in order to monitor its fleet of cargo ships. All systems are monitored to help increase usage of the fleet, and reduce costs. An example is using predictive maintenance and data science algorithms to find the best time to clean a ship's hull in order to reduce fuel costs caused by drag. Details of these use cases, and others, can be found on our website:http://www.pentaho.com/customers	

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	Sector	Solution	Question	Template Response	Picture number
Dublin Airport	Transport	Integration platform	Based on your knowledge of daa and the information provided in the background section of this document, what integration architecture would you deem most appropriate for daa and where would your product fit into this architecture? (As an example, would you see a requirement for an API Management Platform and/or an ESB and/or a broker for IoT integrations, etc.)	Texuna believes that the crucial aspect to long term integration management is the orchestration of complexity through the use of metadata injection frameworks. This allows layers of abstraction and reuse to be built into a heterogenuos data pipeline, allowing common standards and reusable workflow to be introduced to a wide variety of data and systems. This means a common approach can used to manage and secure data across legacy mainframes, cloud api's, mobile data schemas, IOT devices, video streams and any other potential future sources or targets for data flow. By architecting data flows around an enterprise model that permits and respects each of the 3NF, denormalised star/snowflake schema and data vault philosophies of data structure, a long term flexible enterprise approach can be assured. Texuna have built this into its metadata injection framework to simplify orchestration with Pentaho Data Integration (PDI). This platform is ideal in that it already supports no only traditional ETL but also has deep support for message queues, brokers and APIs, but with the ability to extend and customise these plugins for any use case through java code. PDI is used as a core part of Hitachi Rail Europe's predictive maintenance and train monitoring solution – see the architecture detailed below – Texuna and Pentaho believe a similar high level architecture can also be used by daa to support its objectives.	Pic 25
Dublin Airport	Transport	Integration platform	What technology (Hardware and Software) does your product require to operate and is it an open source platform? Please list the key features available in your product, regarding integration?	Pentaho Enterprise Edition (EE) is built upon the Pentaho Community Edition (CE) open source platform. These share the same core engines, but EE offers a lot more extensions such as: • Pentaho Support to provide ongoing guidance, best practices and management of your requests • Rigorous testing and multiple patch releases throughout the year to fix bugs and for enhancements • Better reliability and scalability with cluster support, load balancing, high availability, automatic restarts and data federation support • Better security with AES and Kerberos support • Better visualisations and ability to spot-check data at every step in the data prep process The platform is built on java and can run on any standard Tomcat server as well as other JVMs. It can therefore safely be deployed across most operating systems and commodity hardware without issue.	
Dublin Airport	Transport	Integration platform	What are the typical deployment models for your product and what deployment model would you deem most appropriate for daa? (Cloud, Hybrid, On Premise? If possible, please provide a reference architecture for a fully scalable, redundant, resilient deployment of your product)	Pentaho is fully supported on on-premise, cloud (AWS and Azure for example) or in a hybrid fashion. Pentaho have many large customer implementations that exist on each. Texuna have a hybrid deployment with Jisc that pulls data on-premises (including Active Directory integration) and integrates it with cloud SaaS providers (e.g. Salesforce) for deployment into a cloud based data warehouse with a traditional BI reporting suite hosted in the cloud. A potential reference architecture is given in response to A2 above, although this is limited and high level given our limited conceptual understanding of daa needs. Pentaho Data Integration's (PDI's) deployment options and runtime platform support capabilities can be classified as follows: On-premise (at the customer site) installation and deployment: Pentaho software platform can be installed for production usage via an Archive install process which deploys and automates what is necessary for an installation. Hosted off-premise software deployment (dedicated, single-tenant implementation): Pentaho is easily deployable on the infrastructure provided by 3rd party vendors like Amazon Web Services or Azure – in a secure and private environment exclusive to the customer. Cloud deployment (on infrastructure such as Amazon EC2, Microsoft Azure, etc): PDI can be installed on a variety of platforms, with support for AWS EC2, or it can be deployed in hybrid architectures. PDI supports native integration with AWS S3, Redshift, and Elastic MapReduce as cloud data sources. In-memory computing (IMC) environment (e.g. additional flash memory, solid-state appliances etc.): PDI supports compatible operating systems deployed via SSD, Flashdrive, etc. to increase performance.Supported operating systems and high performance environments are: Microsoft:Windows 2008 Server R2 & 2012 Server (workstation: Microsoft Windows 7 & 8). Linux: CentOS 6 & 7, Red Hat Enterprise 6 & 7, Ubuntu Server 12.04 LTS & 14.04 LTS, Suse Linux SLES 11 (SP3+) (workstation: Ubuntu Desktop 12.04 LTS & 14.04 LTS). Apple: OSX 10.9 & 10.10 Virtualisation:Amazon, VMWare, Oracle, Microsoft, RackSpace, OpenStack, KVM, XenServer and others. Hitachi HSP-400: (Hyper Scale-Out Platform) big data hyperconverged infrastructure offering, where Pentaho is delivered as a VM within the platform. Parallel distributed processing:(e.g. Hadoop, MapReduce) PDI's Java-based engine seamlessly deploys to the Hadoop cluster, enabling visually designed transformations to run as native MapReduce jobs. PDI can also be run in clustered server configuration viaCarte, a simple web server for remote job execution. Carte can also make use of cluster resources onYARNwithin the Hadoop cluster.	
Dublin Airport	Transport	Integration platform	What security features are available in your product? Please provide details for incoming, outgoing and transiting traffic to the platform.	Data can be protected independently of processing and transformations and decrypted on-the-fly during transformation jobs and re-encrypted en route to target so that encrypted sources and targets can remain protected. Pentaho is integrated with Identity and Access Management services as mentioned in response A6, including support for Kerberos and AES. Default roles include varying levels of permissions, such as read content, publish content, administer security, manage data sources, execute transformations, schedule content, create content, and more. Roles and permissions are configured and administered through the thin client User Console (PUC). Cell-level security is available via Analysis Schema Security, while row-level security can also be added to Pentaho metadata models. Portions of the OLAP schema can have views restricted by certain user roles defined within the schema definition. These role restrictions can be mapped to the BA Server the same security restrictions are enforced when you publish the schema.	
Dublin Airport	Transport	Integration platform	Please outline the number of out of the box integration adapters/connectors that are available as part of your product (i.e. native Database/Application/Device/Other connectivity)?	There are far too many to list within this document with over 95 out-of-the-box connectors just for input and output (i.e. excluding data processing widgets) across a range of technologies, not just RDBMS. Pentaho also has a rich marketplace of third party and open source connectors. Connectors include RDBMS, NoSQL, Hadoop, JMS Consumer/Producer, HTTP/REST, SOAP, flat files, and third party custom system connectors. The marketplace of connectors can be reviewed here:http://www.pentaho.com/marketplace/	

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Dublin Airport	Transport	Integration platform	What are the typical profile(s) of users on your platform? (As an example – developers, business users, business partners, etc.) Please outline the typical use cases for each user type and provide details on how overall platform governance is achieved and maintained across all user types.	PDI is a visual ETL development tool that can be used not only by ETL developers, but also by business analysts, data scientists, and some BI report building staff.
Pentaho Business Analytics is a web based visual chart and dashboards configuration environment that can be used by anyone to browse pre-prepared data sources and configure visual online dashboards
Pentaho Report Designer is a web based pixel perfect printed or PDF report generation tool that can be used by any BI or report designing user.
PDI's data governance capabilities can be classified as follows -
Metadata interchange with data profiling tools (profiling and monitoring the conditions of data quality) - PDI provides the ability to do basic data profiling. PDI also integrates with Melissa Data plug-in steps to run a variety of advanced data profiling and quality routines as a part of existing transformations in the PDI interface - includes contact verification, IP location/geolocation identification, address verification, change of address checks, advanced de-duplication, advanced profiling for a target schema, and more.
Metadata interchange with data mining tools (e.g. relationship discovery) - PDI has the ability to integrate with Weka, R, and Python to implement data mining within data flows. PDI passes data and metadata to the underlying data mining framework for processing and then returns modeled output to a PDI transformation. This lets organizations operationalize advanced analytics in the data integration pipeline.
Metadata interchange with data quality tools (supporting data quality improvements) - PDI provides the ability to do basic data cleansing and quality tasks. PDI also integrates with Melissa Data plug-in steps to run a variety of advanced data profiling and quality routines as a part of existing transformations in the PDI interface - includes contact verification, IP location/geolocation identification, address verification, change of address checks, advanced de-duplication, advanced profiling for a target schema, and more.	
Dublin Airport	Transport	Integration platform	What do you see as the core feature(s) that do not exist today within your product/platform that will deliver the most value to customers once it is made available in a later release?	Pentaho are constantly improving the platform. Recent features include the ability to execute Pentaho Data Integration (PDI) transformations on a choice of runtime engines. Options currently include our own Kettle engine (ran on general commodity servers, or within Hadoop/Hive), and Apache Spark (since PDI version 7.1 released in May 2017). Pentaho intends to add more big data runtime options in the near future, allowing IT managers to isolate customer integration jobs in the enterprise from the rapidly changing underlying big data technologies.	
Dublin Airport	Transport	Integration platform	What do you see as the biggest challenge a company like daa regarding our current and future requirements for data/systems integration? How would your product help?	The sheer variety of systems to integrate provides two challenges that can only be managed by Pentaho orchestration and metadata injection:
Maintaining code for such a number of integrations is costly and complex, and would suffer if the person who wrote the code left. With PDI the ETL transformations are all visual, and self-documenting in the flow. Annotations can also be added to jobs. With Texuna's frameworks the entire collection of integration jobs can be standardised and metadata driven, bringing discipline, testability and abstraction layers to simplify highly complex environments. Metadata injection allows new sources and targets to be introduced, and flexible to changes over time, permits data flows to be standardised, error handling to be streamlined and realtime monitoring to be simplified. ETL developers will not be able to learn and memorise the data items and formats of all the source systems. This makes visualising the data from within the ETL tool and the metadata publisher, rather than only by querying the target system after the fact. This is vital to ensuring data quality and accuracy. PDI provides inline visualisation using not only tables, but a wide variety of charts similar to using a BI tool. This ensures not only that you discover data quality issues before they end up in the hands of end users or BI tool users, but also that you can be sure that the report types needed can be supported by the data you are sending to your target systems. The ability to streamline the creation of high quality data integrations, remove code, re-use existing integration code through abstraction, and inbuilt support for a wide variety of data sources and delivery channels ensures that by using the Pentaho Platform you minimise the total cost of ownership and increase maintainability of your systems over a much longer period of time.	
Dublin Airport	Transport	Integration platform	With GDPR compliance scheduled to be enforced from May 2018, are there any features included in your product/platform to help manage these requirements from an integration systems perspective (i.e. – does your product/platform enable data protection by design)?	Texuna's work with the UK government as a data processor handling sensitive personal information (student data and electronic patient records) means that we are at the forefront of understanding the implications of GDPR on governance, IT and security. For managing development, UAT and production across different teams and source systems, Texuna have designed an obfuscation workflow and audit trail on PDI to help data owners and data protection officers to classify data and ensure the right strategies are applied to the data before it moves from source to elsewhere. This leverages the Texuna metadata injection framework to ensure that risks are recognised and treated appropriately as data moves between teams and environments.
Pentaho has built in capabilities for data profiling, data lineage as well as integration with third-party platforms like Protegrity. All lineage information is available in the metadata definitions of Pentaho ETL transformations, semantic models and reports which enables users to implement routines to determine lineage. Pentaho also offers the ability to visualize the end-to-end flow of your data across transformations, providing valuable insights to help maintain meaningful data -Pentaho users have access to data lineage information for transformations including sources, calculations, and manipulations, which users can seamlessly export to 3rd party tools for graphical viewing.
Pentaho's data lineage capabilities allow us to take advantage of tools from Metadata Integration Technology (MITI), which enables the viewing of lineage information from both Pentaho and other ETL/DI tools from one user interface - regardless of the specific tools used.	
Dublin Airport	Transport	Integration platform	Please include any other information you deem relevant.	Texuna is not only a data management and innovation company but a software engineering company with deep java expertise working with a range open source technology libraries (e.g. for security and identity mangement). We have both delivered turnkey software solutions based on open source libraries as well as build-own-operate or own services to deliver the exact outcomes required by customers. With ISO certification for quality, service management and security we are a vendor neutral system integrator with world class credentials for high quality enterprise solutions and data flows. We also bring world class understanding of the enterprise journey toward emerging technology trends such as 12 factor apps and the move to microservices. We have partnered with Professor David Sammon in the University College Cork (responsible for the data business MSc programme) as an independent facilitator and reviewer of data processes and flows to help ensure the highest quality thinking and peer reviews are available for our projects. This includes the delivery of practical blended data models of Inmon 3NF, data vault and Kimball dimensional data marts as part of a larger enterprise data pipeline.	

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	Sector	Solution	Question	Template Response	Picture number
Dublin Airport	Transport	Integration platform	Please describe all SLAs that your company offers for your integration product(s)? (Including details of response times, fix times, updates, upgrades policy etc.). It should be noted that daa is a 24/7, 365 day a year operation and may require an SLA to deliver this level of support for the integration platform(s) if it is deemed necessary.	TEXUNA 1stand 2ndline support too. Texuna offers bespoke 1st, 2ndand 3rdline support services according to ITIL standards and audited by the British Standards Institute to the ISO20000 standard. Texuna can offer 3rdline 24X7X365 cover with exceptional remote access for P1 items that cause downtime to operations should this be required. Texuna can offer negotiable response times and escalations for different incident severity types. Pentaho offers an Enterprise support service that is phone and web based 24x7. Target response times are below for different severity of issues:- Severity 1: 1 HourSeverity 2: 2 business hoursSeverity 3: 4 business hoursSeverity 4: 4 business hours Each customer is entitled to 3 named support contacts. Several other benefits are also available in this programme. Please see the website for details:http://www.pentaho.com/service/enterprise-support	
Dublin Airport	Transport	Integration platform	Do you offer a complete support package for your product (application services and platform) or is a 3rd party/partner required to achieve this?	Pentaho directly offers Enterprise support packages for the Pentaho Platform. See http://www.pentaho.com/service/enterprise-supportfor full details. This allows daa contacts to work directly with the global Pentaho support team. However additional support and bespoke onsite or remote services can be offered by Texuna as the preferred partner in the Republic of Ireland through a separate agreement.	
Dublin Airport	Transport	Integration platform	What support models do you offer for your product(s) i.e. fully managed service, 2nd line support, 3rd line support, etc.? What support model would you recommend in order to to deliver maximum flexibility and reliability for your customers?	Texuna can provide a range of support models tailored to meet the needs of the daa. This can range from a fully managed service where Texuna can build own and operate the integrations infrastructure with responsibility for service levels and uptime, all the way to a backup support service for 3rdline support for technical queries from the daa team on any Texuna designed and delivered integration jobs. Pentaho's global support team can provide 3rdline support for the Pentaho platform and associated tools but will work with its partner Texuna to provide any bespoke support for the daa implementation.	
Dublin Airport	Transport	Integration platform	Do you have a flexible resource model for development on your product such as a professional services organisation or partner network if required? Please provide details	Pentaho have an international professional services team in Europe, as well as an extensive network of independent partners and resellers. In the Republic of Ireland Pentaho work with Texuna as a preferred partner with trained and certified professionals at their disposal. Pentaho can also allocate Pentaho professional services team members to complement any team or provide unique implementation support or peer review services. Sometimes this team is available to troubleshoot faltering project and assure customer success and satisfaction.	
Dublin Airport	Transport	Integration platform	Approximately how many training days a year are your technical resources provided with on your core product/platform and how is this delivered?	Pentaho run a very mature partner network with bi-annual on-site partner training events and conferences. No partners can sign up to the network without completing a minimum amount of training with certifications for a minimum number of individuals in the partner organisation. Texuna have attended a range of events and completed certifications for a number of their professional consultants, as well as having demonstrated deep knowhow on large scale projects to date. Internally Pentaho employees undergo a range of continuous technical and professional training, including update courses for upcoming releases of software. This varies greatly depending upon job function. Approx 20 days a year of technical training are carried out internally. Pentaho's Enterprise support package includes a named Pentaho technical contact, and services technical checkpoints. Online instructor led training is also available to customers and partners for all products, including for both development, user, and administration roles for those tools.	
Dublin Airport	Transport	Integration platform	Have you deployed your product in any other airport? Please include details of typical use cases, deployment model and overall integration architecture if possible (i.e. where your product fits into the overall integration landscape).	Beontra, a Lockheed Martin company, use Pentaho to provide an integrated traffic, capacity and revenue planning service to airports. Further details can be found here: http://www.pentaho.com/customers/beontra-gmbh-lockheed-martin-company Brussels Airport use Pentaho to provide a single Data Integration, Analysis, Reporting and Dashboard service. Further details can be found on our website:http://www.pentaho.com/customers/brussels-airport Swissport, the airport Ground Services company, use Pentaho to predict traffic usage and maintenance (such as de-icing) patterns at airports. Further details can be found here:http://www.pentaho.com/customers/swissport	
Dublin Airport	Transport	Integration platform	Has your product/platform been used in an advanced analytics data solution based on aviation data, if so, can you provide an example?	CareFlight use Pentaho to integrate external flight information with internal medical information in order to provide their service, and save lives. Further details can be found on our website: http://www.pentaho.com/customers/careflight Internally Pentaho carried out an IoT hackathon with sales engineering staff in EMEA. One of these tasks involves taking environmental data from IoT electronics. Another used a Raspberry Pi to intercept ADS-B messages from aircraft overflying London. This data stream was integrated to other public sources of information to display flight and aircraft information in real time to a situational awareness dashboard. This solution was configured, with no custom coding, in just 2 days using the Pentaho Platform.	
Dublin Airport	Transport	Integration platform	Has your product/platform formed part of a data strategy specifically for data integration within an aviation company within Europe. If so, can you provide details?	Beontra, a Lockheed Martin company, use Pentaho to provide an integrated traffic, capacity and revenue planning service to airports. Further details can be found here: http://www.pentaho.com/customers/beontra-gmbh-lockheed-martin-company	
Dublin Airport	Transport	Integration platform	API Management	PDI can be used to expose specific steps as data services. These can be interrogated via JDBC. Over 95 other system connectors are also provided out-of-the-box, allowing any API to be used and fronted by a Transformation.	
Dublin Airport	Transport	Integration platform	Handling of Structured and Unstructured Data Sources (including Big Data, Hadoop)	Pentaho was built specifically to handle traditional RDBMS and flat file data sources as well as modern Big Data sources, including Hadoop and various NoSQL databases. It has native support for Spark jobs, meaning any visually designed job can be run through PDI server or executed via a Hadoop cluster.	
Dublin Airport	Transport	Integration platform	Workflow Management/Orchestration	PDI can be used to specify which steps in a workflow (Pentaho Transformation) have multiple threads. PDI can also orchestrate system to system integrations across multiple systems, including data blending, and error handling and reporting.	
Dublin Airport	Transport	Integration platform	Change Data Capture (CDC)	Jobs can be created to capture data deltas in source systems that support such features, to minimise data traffic and mirroring/staging requirements. PDI also offers the ability to visualize the lineage of your data through 3rd party tools such as Meta Integration Technology (MITI) and yEd – generating files that can be opened using 3rd party lineage viewers. Lineage info can also be retrieved from PDI via built-in REST APIs.	

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Dublin Airport	Transport	Integration platform	Business Process Management	PDI Transformations provide data workflow between systems and as a data pipeline. This could include information around user and automated tasks. Pentaho Business Analytics can be used to provide activity Dashboards showing this underlying information. For example, Accenture have used Pentaho to build a securities trading workflow platform to capture the entire trade execution business process.	
Dublin Airport	Transport	Integration platform	Master data management	Using a combination of PDI data validation and deduplication steps and 3rd party validation and augmentation steps from Melissa Data (used in PDI), users can identify duplicate and dirty records and then produce pristine records for data quality and master data management use cases. Texuna provide a framework for data flows between systems and components to ensure that master data is maintained separately from the operational data store to ensure delivery of high quality master data and dimensional attributes to transformation jobs as well as to BI tools and back to source systems.	
Dublin Airport	Transport	Integration platform	Support for multiple protocols/Integration methods including HTTP(S), SOAP/REST, JDBC/ODBC, LDAP, MQTT, AMQP (other IoT protocols), MQ, JMS, (S)FTP, TELNET, TLS, TCP/IP Please outline any additional supported protocols/methods not outlined here.	All of the mentioned connectors are supported. Over 95 connectors to systems are provided out-of-the-box. More proprietary connectors are available on the Pentaho Marketplace (free and paid for).	
Dublin Airport	Transport	Integration platform	Integration with IAM	Pentaho supports Active Directory, CAS, Integrated Microsoft Windows Authentication, LDAP and RDBMS for security.	
Dublin Airport	Transport	Integration platform	Service Level Monitoring	Monitoring is supported within PDI, including data preview. Live service monitoring can be configured with any SNMP client, such as Microsoft SCOM.	
Dublin Airport	Transport	Integration platform	Custom Built Adapters/Connectivity	Pentaho Data Integration (PDI) is an open and extensible platform, with a rich third party and open source adapter marketplace. Customers also have the option of developing their own connectors/steps for their specific needs.	
Dublin Airport	Transport	Integration platform	Data Translation, Validation and Filtering	PDI provides this as drag and drop functionality, as visually configurable steps within transformations.	
Dublin Airport	Transport	Integration platform	Complex Extract, Transform and Load (ETL)	PDI is the ETL tool within the Pentaho Platform, and its modular and extensible nature allows a range of complexity to be tamed and standardised on the platform.	
Dublin Airport	Transport	Integration platform	JDBC Data Service	PDI can expose a step in a transformation as a JDBC Data Service. This can be queried using SQL from any compatible JDBC client, including Tableau.	
Dublin Airport	Transport	Integration platform	NoSQL database connectors	A range of NoSQL databases can be integrated with, including MongoDB, Cassandra, and others.	
Dublin Airport	Transport	Integration platform	Hadoop connectors	Cloudera and Hortonworks can be leveraged by Pentaho for its PDI runtime (using either the Pentaho and/or Spark engines), and also data stored on HDFS/Hive, Impala.	
Dublin Airport	Transport	Integration platform	Supported Server OS: ● Windows Server 2012 R2 or later ● Red Hat Linux 7.1 or higher ● Oracle Enterprise Linux 7.1	Windows Server 2008 R2 and 2012 R2, CentOS 6 & 7, Ubuntu 14.04 LTS & 16.04 LTS, SUSE Linus (SLES) 11 SP3+ are supported For full details see: https://help.pentaho.com/Documentation/7.1/0D0/160/000	
Dublin Airport	Transport	Integration platform	Supported Databases: ● Oracle 12c or Later ● Microsoft SQL 2012 or later	Texuna have experience troubleshooting Oracle and Microsoft database connectors. PDI supports JDBC 3 & 4 data sources, including Oracle 12c and SQL Server 2012. In addition a large variety of data formats and big data sources are supported. For full details see:https://help.pentaho.com/Documentation/7.1/0D0/160/000 For a list of JDBC drivers supported, see here: https://help.pentaho.com/Documentation/7.1/0D0/160/010	
Dublin Airport	Transport	Integration platform	Supported Single-Sign On Engine and Federated Identity: ● Microsoft Active Directory Federated Services (Server 2012 R2 - version 3.0) (issues SAML 2.0 Tokens) ● Oracle ID, 11g (11.1.1.2) - Oracle Apps only	Texuna has deep experience with Single Sign-On and SAML2.0, integrating with ADFS and as well as cloud IAM (AWS Cognito and Azure Active Directory). Pentaho supports Active Directory, CAS, Integrated Microsoft Windows Authentication, LDAP and RDBMS for security. Also, a thin client UI is provided for configuring Pentaho Security to work with external security systems via a pluggable security architecture enabling seamless integration. Customers often customise Pentaho to align fully with an existing application's security. Specifically, in these cases, users must access their own secure data and content while leveraging the same software infrastructure (different customers' data could be shared in the same databases for instance, with different customer-specific 'striped' rows). Pentaho provides well-documented methods to modify configuration files and Java libraries to apply custom security and business rules to control access to data, matching precisely the existing application's security. Many OEM customers use this method to align Pentaho's data access rules precisely with their cloud-based application. Regarding ID pass through - Pentaho supports a unique database connection ID per tenant (normally an organization or business team) - this is a common implementation and best practice for OEM customers who need to provide separate database connections for their different customers. Also, Pentaho can access security tables in an application database via JDBC.	

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Dublin Airport	Transport	Integration platform	Enterprise Monitoring: ● Microsoft System Center Operations Manager 2012 R2 (SCOM)	Audit information (security, usage, performance, errors, etc.) is captured in a centralised operations mart that can be explored using the full suite of Pentaho capabilities (reporting, analysis, dashboards) - including but is not limited to detailed report execution info, user session timeline and duration, login metrics, ETL job execution info, server performance, server errors. Pentaho also provides integration with traditional SNMP monitoring to capture system events. This set up enables integration with 3rd-party enterprise monitoring tools like Nagios, Icinga, PRTG Network Monitor, Microsoft SCOM, and others to leverage their functionality for operational purposes. Additionally, Pentaho audit logging and system logging that is made available for easier access through the operations mart described in the Security and User Administration section above.	
Dublin Airport	Transport	Integration platform	Web Browser: ● Microsoft Internet Explorer 11	PDI fully supports: ● Internet Explorer 11 ● Firefox 48 & 49 ● Chrome 53 & 54 ● Apple Safari 9 & 10 (Mac only) For full details see:https://help.pentaho.com/Documentation/7.1/0D0/160/000	
Dublin Airport	Transport	Integration platform	Enterprise Backup & Restore: ● Vertias Netbackup 7.6.1.2	Pentaho elements can be exported via a command line utility or REST API, and saved as a Zip file that any backup solution can handle. This allows transformations, dashboards, configuration, etc. to be backed up. For live systems, Pentaho runs inside a Tomcat Servlet container, meaning any backup tool that can handle Tomcat log files will suffice. SNMP monitoring is also supported by general backup tools. SeeBackup_and_Restore_Pentaho_Repositories	
Dublin Airport	Transport	Integration platform	Virtual Server Environment: ● Vmware ESXi 5.5 or higher	Server virtualization (shared, virtualised implementations): PDI is compatible with Amazon, VMWare, Oracle, Microsoft, RackSpace, OpenStack, KVM, XenServer and others. In addition, PDI is integrated into an on offering in the Hitachi HSP-400 (Hyper Scale-Out Platform) big data hyperconverged infrastructure offering, where Pentaho is delivered as a VM within the platform.	
Dublin Airport	Transport	Integration platform	Application Development Security Standards: ● OWASP ● SAML 2.0	If you are already using a security provider or mechanism, such as LDAP, Microsoft Active Directory, SAML (Security Assertion Markup Language), or your own security tables over JDBC, you can leverage the users and roles you have already defined with Pentaho. Your security provider controls which users and roles can access Pentaho web resources through the User Console or resources in the BA repository. Connecting to your existing authentication provider (in the case of LDAP) is configured and administered through the thin client Pentaho User Console (PUC) by submitting the security provider credentials and configuring LDAP properties files. Pentaho can look up user names and corresponding roles from LDAP to populate its Access Control List (ACL). Once configured, the authentication happens in real-time, as the definitions are searched/called from the security provider during Pentaho login, i.e. they are not separately imported.	
ItemBank	Banking		STA and its delivery partners must put in place an appropriate range of technical controls for all ICT systems, proportionate to the value, importance and sensitivity of the information held and the requirements of any interconnected systems.	Texuna implements a range of technical controls for all systems, as follows: a) As part of Texuna's security policy access is granted strictly on a required need basis. Our access control and authentication product ensures that only authorised staff may be granted access to our information systems and that within a system, access is controlled on a 'need to know' basis. b) A detailed asset register of all assets within the organisation is maintained with any characteristics of that asset recorded. Write access to this register is restricted. c) Assets are protected according to their 'value' and security requirements. Physical access to high value assets, such as servers holding information systems, is restricted and controlled. Electronic documents and records are labelled according to their security markings, ownership and distribution and access is controlled on a need to know basis. d) Texuna will not transmit Personal or Live Item Bank data outside of the EU. Further steps have been put into place to prevent the Item Bank being available beyond the DfE and Texuna's EU offices. e) Client data and documents are retained in their valid form. Our policies do not allow for the destruction of data, rather such data would be archived for future reference, and all client data wil be returned to the owner at the end of the contract.	
ItemBank	Banking		STA and its delivery partners must implement appropriate procedural controls for all ICT (or paper-based) systems or services to prevent unauthorised access and modification, or misuse by authorised users.	Texuna implements a strict user name/password access to all systems. A hierarchical based security model (similar to the Windows LDAP Schema) is in place to manage the system. This allows all user account details and access rights to be managed centrally in a clear and concise manner. This system also allows a high level of granularity when assigning permissions. This means that a wide spectrum of permission levels can be implemented (if required). In addition, all applications implement an version history of changes made to specified forms or pages. This creates a clear audit trail of which users made which changes at what time.	
ItemBank	Banking		Suppliers must ensure that personnel security risks are effectively managed by applying rigorous recruitment controls, and a proportionate and robust personnel security regime that determines what other checks (e.g. national security vetting) and on-going personnel security controls should be applied.	Texuna currently implements an extensive validation process, for all new staff, compliant with BPSS for all new employees. This includes identity verification, qualification verification, employment eligibility and employment history verification (3 years). UK based staff are criminal record checked through Disclosure Scotland, and this is kept current. Non-uk staff are all required to complete a criminal record declaration.	

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	Sector	Solution	Question	Template Response	Picture number
ItemBank	Banking		STA and its delivery partners must have in place an appropriate level of on-going personnel security management, including formal reviews of national security vetting clearances, and arrangements for vetted staff to report changes in circumstances that might be relevant to their suitability to hold a security clearance.	Texuna implements ongoing validation of all changes to staff circumstances, with staff members being advised on what changes in their circumstancs need to be reported and to whom. These changes are in turn fed back to specific organisations, should the need arise (i.e. depending on the change in circumstance and staff member's role/responsibiliy).	
ItemBank	Banking		STA and its delivery partners must undertake regular security risk assessments for all sites in their estate and put in place appropriate physical security controls to prevent, detect and respond to security incidents.	Texuna actively manages information security risks for all information assets owned or managed by the organisation. The risk management approach is compliant with ISO 27001, with continual risk monitoring and assessments being carried out. Regular risk review meetings are held between the standards officers within Texuna, with a view to ensuring all risks are identified and responded to by means of mitigation and/or removal of risk(s).	
ItemBank	Banking		STA and its delivery partners must implement appropriate internal security controls to ensure that critical, sensitive or protectively marked assets are protected against both surreptitious and forced attack, and are only available to those with a genuine „need to know". Physical security measures must be proportionate to level of threat, integrated with other protective security controls, and applied on the basis of the „defence in depth" principle.	As part of Texuna security policy, role types and levels of access associates with each role type is defined. The general principle is that additional access is only granted on a need to know basis. As part of ISO 27001 certification, audits are carried out on user access and permission structures. Currently, for each system user, the access levels are defined from a central location, which allows for transparency and an audit trail of exactly what access each user may have.	
ItemBank	Banking		STA and its delivery partners must put in place appropriate physical security controls to prevent unauthorised access to their estate, reduce the vulnerability of establishments to terrorism or other physical attacks, and facilitate a quick and effective response to security incidents. Selected controls must be proportionate to the level of threat, appropriate to the needs of the business and based on the „defence in depth" principle.	As part of ISO 27001 certification, entry to locations containing sensitive data have been verified and themselves are certified to ISO 27001 standards. Texuna only employs data centres who meet exacting security standards as identified under ISO 27001. Within the offices, locks, doors and windows are assessed as part of special physical security audit and measures in place reviewed and updated as required.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
ItemBank 2017	Banking		The Solution must facilitate the users' ability to store and recall the items and associated information used in tests developed by the STA. There must be simple links between an item and its associated information to enable cross referencing. Associated information includes: mark schemes stimulus material (this includes text, pictures, diagrams and graphs). It should be noted that one stimulus may have several associated items images (these may be linked to items or to a stimulus) modified versions of items for accessibility reasons (e.g. braille, modified large print or versions for pupils with hearing impairment) The solution must facilitate the onscreen display of an item (and other) lists in a viewable format. (Ideally users should be able to view items via the solution interface and should not require additional software to be installed locally).	The Texuna Itembank and e-Assessment (IBeA) solution is a web-based metadata driven platform that provides a robust and secure data management solution incorporating a relational database, workflow, metadata and rules management, analysis and reporting components into a combined powerful and flexible package. The ability to hold an item and link it to relevant supporting information such as; mark schemes, stimulus materials, images and alternative versions is fully supported. The platform allows establishment of a range of relationships between objects; for example: marking scheme associated with a question and number of items, marking scheme associated with individual items, stimulus associated with zero, one or more items and questions, questions, items or stimulus that can/can not be used together in a test via reciprocal or one-way relationships. Authorised users are allowed to create questions and items then linking them with appropriate stimulus and marking schemes as needed. Users are able to view, edit, navigate from an item to its marking scheme, or the other way around seamlessly. Users may also navigate from Test material (including marking schemes etc) to Tests where such material has appeared. Similarly users may easily navigate from Booklets, Tests, Meetings and Evidence gathering sessions across to the Test material used within. Once evidence of Test material performance in Evidence gathering sessions has been recorded (via e-forms or uploads of data through intuitive templates), this may also be easily accessed from either the Test material or Evidence gathering session. On creation, each entity is assigned a unique reference number based on pre-agreed rules. The IBeA solution may support and store as many alternate or modified versions of Questions, Items and Stimuli as needed. In addition, administrators may add new versions in the future or manage existing versions via the Backoffice interface at any time. This means that the IBeA solution can easily support existing needs and adapt to future needs with ease and without the involvement of Texuna. Authorised users are able to search, export, view historical versions, add metadata, create links with other entities across the solution like items, tests, QIGs, mark schemes, stimuli etc. These searches are extremely flexible and powerful, a user may search for Test material using Evidence gathering data or visa-versa (e.g. searching for particular items with a particular NCR value, filtering by an IVT test it has been used within). Exports can be in a number of formats based on the data being exported. For instance: A summary of Test material data with or without associated mark schemes or files All Test material data with or without associated mark schemes or files User defined export templates only containing Test material data and file the user needs All Evidence gathering data again with or without associated files Booklet specific exports to support finalised offline paper/pdf design if needed Templates of Evidence gathering data and test materials contained within an Evidence gathering session These exports are automatically further tailored to exact user needs based on the data within the export (e.g. if a particular subject is exported, only data applicable to that subject will be found within the export). Data can be updated through web forms or Excel uploads, and also to be exported in a number of formats. The solution is entirely web-based and does not require any additional software to be installed given they are accessed via standard internet browsers.	Pic 26, 27, 28, 29

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ItemBank 2017	Banking		The solution must assign a unique reference code (ID) to each item, stimulus and mark scheme as they are added to the bank. The ID must start with a subject letter (R for reading, M for mathematics and S for science). For example, reading item 1 = R00001 The solution must also facilitate the users' ability to edit items, stimulus material and mark schemes in the repository or upload new versions, whilst maintaining previous versions. This includes the assignment of a status to each item to track at which stage of the development process is the item. Users should also be able to view, compare and print information about all previous versions relating to an ID (for example, the item history). The solution must also facilitate the definition of relationships between items by specifying, for example, groups of items which belong together (for example, items which together form a question).	Texuna IBeA allows users to store, recall, edit and create all items (and their relationships) present in the item bank, at any time using a variety of filters from any entities and data stored. Every item is assigned a unique reference code. Both internal keys and user friendly unique IDs are used with the Texuna IBeA. The user friendly unique IDs provide information to the user such as what data belongs to what subject, or how Items relate to Questions or how Booklets relate to Tests. Links between entities are transparent to allow users to review marking schemes or stimuli associated with items or questions. Similarly relationship links exist between Questions, Items and Stimuli themselves. In addition, links are stored between similar test material showing what can/can not be used together in reciprocal or one-way relationships. Users are able to use these relationships to browse and edit any data in IBeA provided that they have the requisite permissions. A 'status' field is available to track a Question's, Item's and Stimulus position in the Test Material development workflow. The workflow builder can be utilised to define a fool-proof mechanism where the system will ensure Test material moves from one state to the other on specifying certain pre-defined criteria. This helps ensure that the correct development of Test material is fully auditable and also provides valuable analysis of what material exists at what stage of development, in addition to analysis of Test material attrition and where the STA are expending efforts in development. The workflow status and version history of Test Material also ensures that end users are fully aware of the next steps needed in Test material development, providing a clear easy to understand user experience. An administrator role also exists to allow for edge cases and exceptions to be accommodated by exception as needed. Texuna IBeA automatically provides a complete audit trail and this is described in more detail in response to question 4 below. Data Creation and Management The audit and versioning feature encompasses metadata. All entities have metadata information associated with them. These can be created, reviewed, edited or new versions uploaded. This metadata is fully customisable by administrators, which supports the ability to meet any existing and future changing needs. This flexible metadata, along with relationship data, allows for effective grouping of records to suit the exact needs of each stakeholder group (e.g. different Subject teams). The metadata itself can also be used to derive further metadata, e.g. defining Content domain from Content strand. Texuna IBeA has a file upload capability to manipulate entities on bulk. New metadata versions may be uploaded and the audit and history features track the changes being made, including the user making the change, the time and a description. Texuna IBeA supports data uploads in a number of formats including CSV, TSV, XML and Excel (with Excel known to be the STA's preferred format) . Texuna IBeA allows STA administrator users to add new and manage existing metadata fields, their possible values, validation and availability at any time. Images, audio, video formats are also included as standard metadata/stimuli. Psychometric data can similarly be imported using the data upload facility with Texuna IBeA. Users are able to import this information for items and tests in bulk from a file. Rule Creation and Management Texuna IBeA allows users to create and manage business rules from within the application. Business rules can be applied to imports, e-form edits, exports and display. Rules may be used to filter, transform, validate, and represent relationships between records. Complex rules become easy to manage through an intuitive user interface, without the need for complex programming or knowledge of scripting languages. The rules can be structured within rulesets to allow for comprehensive and diverse sets of rules, whilst also minimising any management overhead and complexity. User Software requirements A range of format for upload are available. csv, excel and xml are defaults supported within the platform, with Texuna understanding that excel is the STA preferred format.	Pic 30, 31, 32
ItemBank 2017	Banking		The Solution must facilitate the storage of items, mark schemes and stimulus in (at a minimum) Microsoft Word and PDF format. The Solution must store content in such a way that it facilitates, in the future the electronic delivery of tests directly from the solution or the export of items in a format suitable for on-screen testing. NOTES: The on-screen test may be run from the item bank itself or exported to an external system to be run operationally.	Texuna IBeA allows authorised users to create evidence gathering session, tests and booklets using existing Question, Items and Stimuli. The system links together all data, including marking schemes in any format including Microsoft word and PDF, based on the test record, or test materials included in a test. Users can search and select items to be included in a test using a variety of filters and criteria as mentioned above. Users may also upload lists or IDs or copy existing booklets to select items to be included in a test. Users can then define sequence of items and related information, while editing tests. Once an item has been used in a test, the item history is updated to capture this information. Open standards such as IMS QTI 2.1 compliance are supported to permit Question and Test Interoperability in the future as required by the STA. The Texuna IBeA solution has an e-assessment module, not currently configured at the STA. This module will enable test delivery and management making it easy to design and release tests online.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
ItemBank 2017	Banking		The solution must facilitate the users' ability to assign, define and edit a variety of metadata and add additional metadata fields and categories (including specifying a list of possible values, if appropriate) to: items mark schemes tests stimulus materials images Please note this is not an exhaustive list. Further examples of metadata are provided at the end of this section in 11. Appendices.' The solution must facilitate the users' ability to upload new metadata versions and record the history of the metadata such that, for example: changes are tracked, including information about: the user who made the change; when the change was made and why the change was made; changes are viewable and printable; comparison may be made between different versions of the metadata. NOTES: Primarily the assignment of metadata will be undertaken by the users, but the Solution should not prevent the assignment of metadata by a software application or tool which interacts with the repository. The Solution should facilitate the users' ability to import metadata for items in bulk from an xls or csv file (or similar). This information is currently stored in spreadsheets for existing items and will need to be imported into the item bank. When item writers submit items they will also submit the metadata for those items. This data is initially captured in a spreadsheet and should be ready for importing straight into the bank.	The Texuna IBeA is a fully compliant metadata driven solution. Metadata is maintained and managed for all transactions. Texuna has configured the STA IBeA solution through continuous integration of new metadata to help users create, manage and use data more efficiently. The IBeA solution allows users to individually access and review existing metadata, as well as facilitates the discovery and identification of specific missing metadata within the Item Bank as new additional descriptive metadata reports are available: 'Missing question report', 'Missing item report' and 'Missing stimulus report'. The STA Item Bank solution encompasses a fully flexible metadata functionality where users can import metadata for items to an existing question stored within Item Bank or by creating a new question prior to importing. Users have the ability to import a large volume of items from a range of different feed file formats such as csv file or excel spreadsheets which are defaults supported within the platform, with Texuna understanding that excel is the STA preferred format. The IBeA solution is fully audited and versioned. The system automatically provides a complete audit trail recording who accessed the data, when the data was accessed, what data was accessed and what change was made. Audit, history and versioning features will ensure all previous versions of an item (or similarly for tests, marking schemes, stimuli) are stored and are available for users to search, view, export, compare and print.	Pic 33, 34
ItemBank 2017	Banking		The Solution must facilitate the users' ability to import psychometric information for items and tests in bulk from a file which has an agreed format. Suppliers must describe how their solution will provide this facility. NOTES: The most likely formats of the file to be imported are either '.xls' or '.csv', but other formats may be agreed with the successful bidder. Most, but not all, of the data would be numeric. TPT analysis will result in summary statistics (e.g. the proportion of pupils who got the item correct) being created for a few hundred items at a time.	Psychometric data can be imported using the data upload facility with Texuna IBeA. Users are able to import this information for items and tests in bulk from a file. Support for excel format upload is provided as standard. This enables a range of different psychometric data to be uploaded. Psychometric data is then matched and stored so that it is linked to the relevant versions of test materials and tests. Once the psychometric data is loaded and stored it is available for search and analysis of the test items.	

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ItemBank 2017	Banking		The solution must facilitate the users' ability to browse, search and filter items, tests, stimulus materials, images and mark schemes based on unique ID, metadata, status and history (for example, search for all items which appeared in a particular test). The solution must facilitate the users' ability to view the history of an item in terms of all of the tests it has appeared in previously and where it appeared within those tests (i.e. the order in which it appeared), along with metadata relating to those tests and the item metadata when it was put into each test. The solution must facilitate the users' ability to view all the psychometric information against an item, selection of items or test.	Authorised users will have full access to the bank of items held in the database that they are authorised to view and use. Full search access is supported to enable the user to search both the items and the metadata that is held and linked to the items. Full searching and filtering of items is supported through the OLAP reporting module. Authorised users are able to view the full history and audit trail for any item selected. This provides a complete history of the item - when and by whom it was created and subsequently edited and in which tests it has already been used together with location within the test information. The user will have access to the full metadata for the item so that all linked material can be viewed in addition. Metadata about the item includes psychometric information that has been uploaded and linked. The user will have full access to all information and metadata that is held and all records of update and use.	
ItemBank 2017	Banking		The Solution must facilitate the users' ability to export reports (in Word or PDF format) on selected tests/items containing summaries of metadata and psychometric information. NOTES: An example of this might be a report on coverage of curriculum areas across a specific test or a selection of tests.	Texuna IBeA comes with a built-in reporting engine that allows easy and flexible data interrogation. Basic features allow users to search, browse, view and export records present in any entity tables. So all resources can be discovered and manipulated using this. Filters are available for users to specify criteria or alternatively the unique record identifier can be used. Free-text, date based, dictionary based, subject based, test based, marking scheme based are some example filters that can be made available. Results can be saved and / or exported in industry standard formats. Exporting reports on selected tests/ items generates an excel file that includes a set of pre-populated information in each worksheet. Any information recorded on the item within the test, such as psychometric data, is contained in the export reports. Extracts are supported for full records or summary and related information. A number of summary reports can also be created to enhance the system and allow STA staff to review progress. For eg: a status summary may prove helpful for the STA to be able to see how many items are in what stage of the development process.	
ItemBank 2017	Banking		The solution must facilitate the users' ability to create a test and assign a unique reference code (subject to agreed business rules) to it. The test must be created within the repository from the stored items by specifying the items to be included and the order in which items will appear in the test (for example, which item appears first, second and so on). When a user creates a test the solution must automatically: compile an associated mark scheme, based on mark schemes stored for each individual item. calculate and store the item sequence number, question number and question part for each item within that test The solution must facilitate the users' ability to view tests and mark schemes in a specified industry standard format and/or as a PDF.	Test Creation The Solution allows authorised users to create tests using existing items. The system links together marking schemes based on items included in the test. Tests, as all other entities, have a unique reference identifier. Users can search and select items to be included in a test using a variety of filters and criteria as mentioned above. Users can define the sequence of items and related information, while creating the tests. Once an item has been used in a test, the item history will also be updated to capture this information. One the test content is compiled it may be exported in Excel format.	

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	Sector	Solution	Question	Template Response	Picture number
ItemBank 2017	Banking		The solution must facilitate the requirement for users to: Log-in to the item bank with a username and password Be assigned different access rights depending on their role within a particular subject The solution must facilitate specified users' ability to assign log-in details and provide/amend access rights. The user interface must be consistent across subjects.	Users, Groups and Roles Texuna IBeA has an inbuilt security module that controls all user access and permissions through a user-friendly interface. This module follows a tiered security architecture using roles, groups and permissions. All users are given a username and password to access the system and are assigned group membership to define level of access rights available to them. Users may have read-only permissions, or read/write permissions depending on their access level. Actions can be restricted to particular groups, for example, one group's members can change the status field for a given subject's items, while only viewing items for other subjects. It is also compliant with open standards such as OAuth2.0 and OpenIDConnect as well as traditional LDAP and Active Directory synchronisation. System administrators can access a dedicated back office administration module to allow for system management tasks to be performed, including creating/updating user accounts and delegated access rights. Texuna provides full support for summative assessments, with critical features including security, reliability, performance, and trust. A range of multimedia sources can be associated with each question type including: graphics, audio files, animations and video. Texuna IBeA has been designed around standards and supports IMS Question and Test Interoperability specification (QTI), LTI support for integration with VLEs, and LDAP (OpenLDAP) for authentication.	Pic 35
ItemBank 2017	Banking		The Solution must be operational during core and non-core hours. Core hours are deemed to be 8am to 6pm Monday to Friday (not including Bank Holidays). Planned outages and non-essential system maintenance must take place during non-core hours and be agreed with the users more than one working week in advance of the outage. If a problem occurs which causes the Solution to become unavailable, users must be notified as soon as possible and at least within one working hour. A notice will be sent when the system is available again. The Solution must have a Recovery Time Objective of 8 working hours and a Recovery Point Objective of 24hours.	Texuna has provisioned the Solution on AWS so that it is available on a 24/7/365 basis, with a high availability percentage of 99.5%, as required by STA. Typically Texuna Solutions have an availability ratio that exceeds 99.5%. The system availability time does not include scheduled and approved downtime, e.g. for new releases. Any approved downtime will occur outside of the usual working hours, Texuna already operates a policy or releasing all systems "out-of-hours". STA and users will be notified of planned downtime in advance and this can further be reviewed in project planning. In the unlikely event of the solution becoming unavailable outside of plan, named contacts at the STA will be notified immediately while Texuna works to investigate and resolve the issue. A detailed report will follow. At such times, the highest priority at Texuna will be to recover the system and bring it back online. Our SLA for a priority one issue such as a system down is 4 hours.	
ItemBank 2017	Banking		The solution must be able to support up to 100 concurrent users and a minimum of 2 million items (from an estimate of 25,000 tests) with associated stimulus material, mark schemes and metadata, including all previous versions. The solution must prevent concurrent users from editing the same item, stimulus material, mark scheme, metadata or test at the same time.	The Texuna solution configured to meet the needs of the STA Itembank is sised for the database and demand levels defined above. Texuna is hosting the solution on AWS cloud hosting on a fully scalable architecture (shown in more detail in response to question 8.4.9 below). Texuna has configured the environment so that it is fully capable of meeting the needs of the STA. Should demand for the service increase then additional system resources can easily be configured to meet the increased service demands.	
ItemBank 2017	Banking		The Tenderer's approach to Incident and Problem Management must align with ITIL v3. References: ITIL http://www.itil-officialsite.com Tenderers are invited to: provide your Incident and Problem Management processes; demonstrate your alignment to ITIL V3; and, to outline issues you feel would need to be addressed in implementing your proposed solution.	Texuna has aligned our service desk processes with ITIL v3 and we are certified by BSI as compliant with the equivalent ISO 2000-1 standard for Service Management across all our operations. Texuna confirm that as part of our ISO 20000-1 and other ISO certifications (ISO 27001 for Information Security and ISO 9001 for Quality) we have a mature and functioning set of processes for recording incidents and potential non-conformances. A comprehensive issue reporting process is in place across the entire organisation. All staff are fully trained to identify potential security incidents. In accordance with our ISO certifications, issues are dealt with as security incidents unless proven otherwise. An online tracking tool is utilised to register, track and manage each such incident. Our processes ensure that all recorded incidents are assessed to determine root cause and that we address the root cause so that we prevent the recurrence of the issue wherever possible. Root cause remedies are addressed as corrective actions are implemented to rectify. In addition, our problem management process may be used to record any preventive actions that may have been identified. Problem management takes a wider view than an immediate resolution of the issue and ensures that processes are also put in place to prevent recurrence of similar incidents. This process serves to increase security awareness and strengthen security integrity going forward. Any raised incidents can only be closed after senior and authorised members of staff have reviewed the issue, any possible impact and corrective/preventive actions associated have been identified and addressed. Texuna has nominated Standards Officers in each office whose role is to ensure that our standards processes are operating effectively. They are also responsible for management reporting to our CEO who strongly advocates our standards processes.	

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ItemBank 2017	Banking		The Tenderer's approach to Availability Management must align with ITIL v3. References: ITIL http://www.itil-officialsite.com Tenderers are invited to provide an assessment of the implications (in terms of support, Service Continuity arrangements, etc.) of meeting Availability targets ranging from 95%, through to and including 99.7%. Tenderers are invited to highlight the trigger points (that will require increases in support, Service Continuity arrangements, etc.) within this band of Availability targets, with indicative costings.	Texuna currently hosts the STA IBeA on AWS cloud hosted architecture as approved by GDS. Our server configuration designed to be available and to deliver high availability. On AWS hosting for our other clients we are typically experiencing in excess of 99.5%. Our solution has been sised for the level of load and demands that we have experienced through past servicing of this contract. If the number of users or items are increased significantly then there may need to be additional system resources made available. On AWS this is a straightforward task to configure additional resources. Business Continuity –Texuna implements a detailed business continuity and disaster recovery plan. Backups of all applications are taken on a frequent basis and stored on site (for quick recovery) and offsite (in case of location disaster). This means that in the event of location failure, all systems can be accessed from the backed up location. Named staff members are in place at each location to take responsibility for all business continuity operations. Texuna is a provider of web-based systems and is therefore proud to have all our applications, resources (internal and project) on web-based, access control and backed-up systems. Regular automated monitoring is in place to ensure system stability and availability. In the event of an office disaster, web-based availability of resources allows Texuna to operate from alternative locations seamlessly.	
ItemBank 2017	Banking		The Tenderer's approach to Capacity Management must align with ITIL v3. References: ITIL http://www.itil-officialsite.com Tenderers are invited to: identify how a Capacity Plan will be developed (including any monitoring regime); and, to outline how you propose to manage and identify any Patterns of Business Activity and the related potential growth of User base over life of contract.	Texuna have a named set of staff who are available, knowledgeable and assigned to work with the STA on the Item Bank solution and service. Texuna monitor and manage our staff and their workloads through our regular weekly operations meeting where managers are able to report and identify and resource needs. Resource conflicts and priorities are typically resolved through these regular discussions. In addition, our technical resources are allocated to tasks through a rolling two month plan so that our product schedule and releases across all projects are clear and so that the deliveries can be managed according to our Agile methodology. Capacity requirements are planned and managed through these regular processes. In the event of expected increase in demand or any identified conflicts, any requests for more resources are escalated to our CEO who has the final decision on whether headcount is increased or not. Texuna ensure that staff are cross trained where possible so that knowledge is shared among project staff. This provides us with capacity among our employees to maintain our levels of service in unforeseen events such as staff absence. There is knowledge among other team members to ensure that our business is continued as expected.	
ItemBank 2017	Banking		The Tenderer's approach to Service Reporting must align with ITIL v3. NOTES: Existing Services within DfE utilise a Monthly Service report cycle. References: ITIL http://www.itil-officialsite.com Tenderers are invited to outline your Service Reporting processes, along with any standard and service-specific CSFs and KPIs.	Monthly Service Reporting The service desk can provide a number of metrics in the form of monthly reports. The report has been defined the the DfE and includes all information requested, including: Management summary (including planned work that may impact Item Bank) Requests and incidents counts and statuses (current and historic) Incident by priority and category First Response Times Issue Resolution Times Monthly availability Performance to KPI/SLAs Delivered System Exceptions Any new or additional content to benefit the project can be discussed and agreed. Reports can be made available in other formats as required. It should also be noted that any important or sensitive issues are flagged immediately to the STA in line with Texuna's ISO 27001 and ISO 20000 Information Management Security System and IT Service Management System, not necessarily waiting until the monthly report.	

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ItemBank 2017	Banking		The Tenderer must provide details of their proposed approach to: help desk arrangements; services levels; and integration with the Department's central helpdesk. Supplier support must be available 9am to 5pm, Monday to Friday (this will align with the DfE helpdesk availability). The route for support calls must always follow the same process: Call originator > DfE Helpdesk > Supplier First Line Support Tenderers must offer support for their solution based on ITIL (v3) best practice (which includes both telephone and e-support at a minimum) for the duration of the contract. Training must be provided to the Test Development team and help-desk users prior to the deployment of the proposed solution, and suppliers must state in their response how their training element will be delivered (to both the help-desk and other users). NOTES: The supplier support referenced above is that which is given directly to the DfE help-desk and not to the end-user (end-user support will be handled internally). References: ITIL http://www.itil-officialsite.com	Helpdesk Arrangements Texuna has 14+ years of experience dealing with technical and non-technical helpdesk queries – with a particular focus in the educational sector. Texuna has aligned its Service Desk facilities with the practices of ITIL v3 best practises and are certified to the ISO 2000-1 standard (Service Management) across all our operations. The Service Desk is manned between the hours of 9:00 and 17:00 every weekday and arrangements can be made for out-of-hours service in discussion with STA. Texuna understands that the route for queries will be as Call originator > DfE Helpdesk/STA team > Supplier First Line Support and that end users will not be contacting the Texuna service desk directly. Most usability issues are resolved internally within the DfE. Where there are technical issues with the system availability or functionality, these are raised with and managed by the Texuna service desk. The response times (SLA's) required for the STA and the level of service matches our Enterprise level support offering. Texuna have therefore proposed Enterprise level service for continuing support of the STA IBeA solution and this is reflected in our pricing proposal. Our documentation on GCloud itemises different possible service packages for Premium and Basic level service. Texuna is willing to discuss these options further if they are of interest and amend our service package if the STA wish. Service Levels & Service Reports All queries received are recorded on our CRM are issued an identifier used to record, track and follow queries from receipt through to resolution. We offer both telephone and e-support The CRM enables all queries received to enter into a queue system based on response time allotted to client. The service levels agreed with clients are fed into the CRM and queries are sorted on the operator's screen based on their response due interval. Current SLAs in place are: Initial response to P1 1working hour Initial response to P2 4 working hours Initial response to P3 8 working hours P1 fault resolution 4 working hours P2 fault resolution 1 business day We are able to monitor and manage the queries received so that the service level is met and can provide reports on activity as needed. Supporting Integration with Active Directory (AD) and SAML2.0 Texuna's Solution supports SAML2 and can integrate with Active Directory through SAML as well. Texuna's own Enterprise Identity and Access Management Solution (IAM), is SAML2 compliant and further supports LDAP and web services. The IAM solution into the Itembank solution for the STA and this will be operational in Q1 2018 for the STA. Approach for integration with the Department's Central Helpdesk Texuna already works closely with the Department's central helpdesk for our SA and GIAS projects and so we are familiar with the practices of the helpdesk and work with them well. Tickets are escalated to us and can be identified using an identifying number so that bi-directional communication and reference to that ticket number is maintained and streamlined. We will respond to all service queries in accordance with the agreed SLA's itemised above. Training Texuna provides training both to the Test Development team and help-desk users as required. The last 'train-the-trainer' session for advanced end-users (superusers) of the IBeA solution was provided in Q2 2017 and was very well received by attendees. Texuna is able to offer training in any of the following formats: Manuals and user guides - there is comprehensive documentation already available to users of the Solution, Videos are already available for uses who are new to the Solution or who want a refresher, Webinar - Texuna can offer webinars as a training option which is useful particularly if attendees are geographically spread, and Face-to-face training.	
ItemBank 2017	Banking		All changes to the system must be authorised by DfE's IT infrastructure change control board. Supporting Reference: ITIL http://www.itil-officialsite.com Tenderers are invited to: provide their Change and Release Management processes; demonstrate their alignment to ITIL V3; and, to outline issues they feel would need to be addressed in implementing their proposed solution.	Texuna do operate a formal change control procedure, however, we would like to emphasise that our beliefs and values are that change is a natural part of project development and that there is a need to embrace and be responsive to new ideas and opportunities as the project progresses. We work in partnership with our clients to ensure that the work we do together will deliver a practical, easy to use and fully functional system in a cost-effective and timely way. Change is part of the nature of the work we do and so our procedures exist to ensure that there is a transparent process and that all stakeholders are fully apprised of progress, ideas and decisions. As a team we are able to respond to changing needs as they arise, the change control process is a tracking mechanism to achieve this in a structured and controlled manner. For the IBeA solution at the STA this is evidenced by improvements we are delivering in the 2017/18 budget year which are provided without additional charge but rather as a demonstration of Texuna's commitment to maintaining a fully functional and fit-for-purpose product for the use of the STA. The detailed change control procedure will be agreed at the start of the project as part of the overall project management processes. Typically the change control process will involve the following steps: Documentation of the new requirement; Priority assessment by the project management team; Agreement to proceed with a detailed assessment; Texuna to provide an impact assessment for approved items; Final decision by the project team and/or management board as to whether the work is approved and the project plan changed; finally A timeline for the requirement is developed.	
ItemBank 2017	Banking		The Solution must contain an automatic back-up (a.k.a. 'archive') facility, or suppliers must ensure that back-ups are regularly scheduled (in line with ITIL best practice). In either case, Suppliers must ensure that the integrity of the back-ups are checked on a periodic basis (the frequency and nature of the back-ups shall be agreed with the DfE). Supporting Reference: ITIL http://www.itil-officialsite.com	Texuna uses Amazon RDS (Relational Database Service) to set-up/operate/scale PostgreSQL, eliminating installation, upgrades, storage management, replication, back-up snapshots. It also automates monitoring/metric management, Isolation & Security (data encrypted at rest). We provide 4 separate, distinct yet standardised environments for STA: Development - in flux, no production data. Test - no production data. UAT- STA testing and training with Production data Production - live data and services. Back-ups are scheduled on a daily regular schedule and backup copies are kept. Disaster recovery tests are scheduled to test the backup and restore processes. The STA's IBeA solution was last tested in September 2017 and the restore test was passed. Texuna can therefore verify that disaster recovery will operate when and if it is needed.	

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ItemBank 2017	Banking		The Solution must be able to meet the Department's application platform standards, where appropriate: Microsoft SharePoint Microsoft CRM Microsoft SQL Server 2008 Microsoft Windows 2008 Microsoft .NET	Texuna is able to meet the standards required by the Department for all application development. We have a service history of managing and deploying solutions in the public sector and directly for the Department for Education in our GIAS, SA and IBeA solutions as well as the NCTL's ITTDMS.	
ItemBank 2017	Banking		The Solution must meet the Department's Information Standards, as published by the information standards board and principles of master data management. References: www.education.gov.uk/escs-isb	Texuna is able to meet the standards demanded of the Information Standards Board and will be pleased to discuss any particular standards compliance requirements that the STA may have. Texuna are a provider of data management solutions and we have a strong track record in the provision of data management and data warehouse solutions in the public and education sectors. We understand the importance of master data management and good governance to protect the integrity and quality of data. We are strong advocates of data as an information asset.	
ItemBank 2017	Banking		The Solution must be delivered either as a Shared Software as a Service (SaaS) solution or hosted with the Department's strategic business application hosting partner.	Texuna is responding to this Request for Quotation through our catalogue entry on the G-Cloud 9 government framework. We offer our Itembank and e-Assessment solution as a Software-as-a-service (SaaS) offering on that framework. The responses made to this SoSR document are descriptive of our SaaS product offering.	
ItemBank 2017	Banking		The Solution must integrate with Active Directory (AD) for internal users.	Texuna confirms that the IBeA SaaS product is able to integrate with Active Directory (AD).	
ItemBank 2017	Banking		The Solution must be able to support integration with SAML2.0 compliant Identity Providers for external users.	Texuna confirms that the IBeA SaaS product is compliant with SAML2.0 and can integrate with SAML2.0 compliant systems.	

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ItemBank 2017	Banking		The Solution must comply with mandatory HMG Security Standards for up to Business Impact Level (BIL) 3 – level to be confirmed in Security Aspects Letter following award of contract. A Risk Management and Accreditation Documentation Set (RMADS) must be produced, and the solution must be accredited by the Departmental Security Unit (DSU), in line with HMG Security Policy Framework (SPF). NOTES: The Department operates a proportionate accreditation policy as required in SPF v7 Mandatory Requirement MR8, which is likely to align well with revisions of I.A. Standards 1 & 2 planned for publication by April 2012. Your tender must indicate whether you include RMADS production in your tender or whether you will contribute necessary information to facilitate delivery of the RMADS by the Department's project separately. References: SPF v7 is published at http://www.cabinetoffice.gov.uk/resource-library/security-policy-framework and http://www.cesg.gov.uk/publications/policy.shtml (IA Standard 1).	Texuna's services to customers are all certified without any exclusions by BSI Group to the ISO27001 standard for its Information Security Management System (ISMS). Our certified ISO27001 approach has been applied to all our public sector solutions all of which operate at BIL level 3. A fundamental pillar of GDPR and existing data protection is the provision of adequate and ongoing security, as well as clearly defined processes to follow in the event of any inadvertent disclosure. Texuna has demonstrated clearly on other public sector projects that it is compliant. We have successfully completed many client audits and RMADS evaluations and have a qualified Data Protection Officer as well as Information Commissioner's Office registration. The STAIBeAsolution has passed the DfE security audit performed in Q2 2017. We have not included commissioning a separate RMADS assessment in our price proposal however Texuna will assist with any RMADS that the STA may want to arrange and will be pleased to provide any specific information that may be required. Intrinsic policies, processes and artefacts which will apply to all our development work are: * Information Security Policy. * Information asset register. * Risk Assessment Process. * Company and project specific Risk Register and active risk management. * Employee Security Agreement, contractually bounding staff to observe policies and procedures guarding client data with care. * Working policy - security. * Secure Development Policy - so all the code we produce has minimised risk of malware attacks. * Implementation of ISO27001 controls so that, for example, all access require named individual access and authentication, users only access what they must be able to see, full operational process documentation, BC/DR tests and documentation. * Access Control Policy. * Online incident tracking tool (including root cause analysis, corrective/preventive actions). * Continual Improvement policy. Texuna is also certified by BSI Group under ISO 9001 for quality management and ISO 2000-1 for Service Management. We follow a process approach so that we are able to offer a consistently excellent service to our clients. Data access and security Texuna's default approach to data access is that "nothing is accessible and everything is auditable" This means that access must be specifically enabled for any user according to their 'need to know'. Texuna use hosting services and environments that are approved by GDS. We are Amazon Web Services (AWS) partners but are equally able to host using Azure services if this is preferred by our clients. Both AWS and Azure meet the GDS standards for hosting. Encryption Cryptographic controls are used for both data in transit and at rest, alongside attack-resistant infrastructure. In-Transit: Protections that will be applied include: * SSL between web server and the authenticated user's web browser (TLS 1.2). * Data encrypted in transit - AWS Virtual Private Cloud and the Virtual Private Network (AWS Direct Connect IPsec using AES-256, SHA-256). * ETL local processing with data encrypted at rest (AES-256). At rest: Texuna automatically applies encryption to data at permanent and temporary storage, whether as digital objects or at database level. This would include: * AWS Simple Storage Service (S3 buckets) or AZURE Blob Storage Service Encryption. * Multi-AZ Relational Database Service (AWS RDS) PostgreSQL or Azure Database for Postgres storage encryption.	
ItemBank 2017	Banking		The Solution must be capable of being re-skinned to reflect Departmental branding and 'look and feel' requirements. NOTES: Specific Departmental guidelines and brand material can be provided on request.	The Texuna IBeA solution as installed at the STA already reflects the STA branding. If the STA were to rebrand at any stage then the new brand style is easily incorporated through use of an updated CSS. Texuna ensures that the solution's overall ease of use is at the forefront for all of our development work. The IBeA solution is already in use at the STA and is straightforward and intuitive to use.	
ItemBank 2017	Banking		The solution must support web accessibility and be (at a minimum) compliant to Level AA of the W3C Web Content Accessibility Standards. References: AA Standard http://www.w3.org/TR/WCAG20/	All of Texuna's projects are developed with accessibility in mind, and conformance with W3C guidelines to at least Level AA standard. In addition we ensure cross browser compatibility so that modern browser versions and variants may equally well be used.	

Intro	Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.				
	Sector	Solution	Question	Template Response	Picture number
ItemBank 2017	Banking		The successful bidder will be required to submit the details of the solution design (including information architecture) for review and approval through the DfE Architecture Review Board.	Amazon Web Services(AWS) is the Texuna recommended hosting platform. AWS provides an easily manageable and scalable solution architecture and which utilises inbuilt AWS tools to simplify management and support. The STA IBeA solution is already hosted in the AWS London data centre which is fully compliant with GDS and GDPR guidelines. An overview of the system architecture proposed and main tools is shown below. This has been reviewed and approved by the DfE as part of the new security process review Q2 2017. We provide 4 separate, distinct yet standardised environments: * Development: in flux, no production data. * Test: verification of software, no production data * UAT: STA testing and training with Production data. * Production: live data and services. As the system size and number of users accessing the database grow it is easy to configure further system resources to support the additional load. Furthermore, the Texuna system design is fully scalable and conforms to a three tier architecture which supports flexible and independent growth of either users or data held. Texuna solutions have been in use in the public sector for many years. One of our initial projects, the National College of Teaching and Leadership ITTDMS began as a single annual data collection solution for teacher training with associated reporting, has grown into an enterprise data warehouse platform that manages more than 20 disparate datasets across more than 10 annual data collections, supporting 14 different user access portals. This is demonstrable proof of the scalable nature of the Texuna solution architecture. The same fundamental design principles as the ITTDMS are in use in the IBeA solution currently installed at the STA.	Pic 36
ItemBank 2017	Banking		It is likely that the Department will in future move to an online end-to-end process for the electronic creation, publication, delivery and marking of tests and the post-test analysis of the outcomes. Therefore, Tenderers must ensure that their solution is capable of being adapted to suit such an environment to meet these needs in the future.	Texuna confirm that theIBeAsolution is capable of supporting end-to-end testing using the e-Assessment module which is part of IBeA but which is not currently configured at the STA. This module forms a fully customisable e-assessment solution, supporting multiple testing options and rich-media integration. It is easy to design and release tests and distribute them anywhere in the world. The tests can be made up of various question types, including: Binary (true/false, yes/no etc.) Extended matching Fill-in-the-blank Image hotspots Labelling Likert scales Multiple choice/response Ranking Script concordance test Text boxes A range of multimedia sources can be associated with each question type including: graphics, audio files, animations and video. This provides for many possible testing options including: Self-tests Progress Tests Formative Assessments Summative Assessments Questionnaires Offline papers Student Peer Reviews	

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ItemBank 2017	Banking		Desirable Service Requirements	Texuna has provided the STA with an Item Bank solution since 2012. In that time our product has proven that it is future-proof and able to flex and change as the needs and requirements of the STA grow and develop, Since 2012 there have been changes to curriculum and metadata, addition of reports in addition to the migration to AWS architecture and the integration with the Texuna Identity and Access Management product that is being worked on currently and which will be available in Q1 2018. Texuna have already addressed many of the' requirements that have been raised in this question. We have provided a response to each of the features below:	

Storing and Managing Repository content
The Texuna IBeAalready supports the following features and the STA have use of them:
Should have features:
Support for the QTI standard is provided and this enables the users to store items, mark schemes and stimulus material in a format suitable for publishing. One click exports/reports are supported to allow publishers to access all the data and content needed for use in publishing tools. The user is able to store audio files against a test (e.g. for mental maths tests). The Relationships fearure enables the user to define relationships between items.
Could have features:
External item writers may be given a role that would enable them to submit items to the IBeA. This is currently supported although the STA have not yet chosen to use this feature.Video, sound and animation files can be stored and used as stimulus material Flexible metadata and reporting gives the users' the ability to flag amended items or booklets and then create a report to be sent to the internal or external resource to do the required design work to create a new version. Texuna IBeA also supports 'informal' evidence gathering so that a user can group and segment the item and metadata as needed and then export the data and content results in a one click export that can be sent to publishers and used in publishing tools at will. Flexible user roles already support the assignment of work from an internal user to an internal user or external contractor electronically (e.g. via a web based portal); Tasks required on test material are managed through the use of 23 different statuses. Status can be used as an indicator and focus of where the next actions need to be taken on the test materials. Texuna IBeA already supports sending emails as needed and this is triggered by changes to metadata on the user's account. (for example is permissions are amended). This capability could be used for any messaging to the user. An 'awaiting approval' flag is available for test material and this will flag to the user dependent on their role. Management of the item statuses can be monitored through use of reports. Texuna IBeA supports full versioning so that any change automatically leads to a new version number and an increase in the current version number. Version number is updated on either a manual or an automated update, for example, where the item is used in a test this will generate a new version number as a baseline. This enables a full history of the item to be maintained at all times.Creating & Managing Metadata
'Should have' requirements
Psychometric data
Texuna already fully supports the upload and storage of psychometric data against items and other entities. Updating and changes to psychometric data are fully versioned and so users are able to track performance of materials based on psychometric data as that data changes.
Graphing of report data
The IBeA reporting capability currently provides a range of tabular reports. Currently plots of e.g. Item./Test Characteristics Curves are not provided although this is a straightforward change that Texuna would be happy to discuss further with the STA.
The IRT formulas analysis is currently performed by STA separately from the Itembank and the results of the analysis held against data in the IBeA version that it applies to. If the STA wish to change this workflow so that integration with the IRT software is supported then this can be costed as a change option and Texuna would be pleased to discuss further.
Raw data support
The Texuna IBeA is hospitable to holding the raw data as a result of IVT,TPT and other live tests and any other supporting information such as attendance codes for pupils so that statistical analysis can be performed. This features has not, to date, been a high priority for the STA Test Development Team to Texuna's knowledge. This feature could be provided as a system enhancement and we would be pleased to discuss it further.
Texuna has uploaded results from skills tests as part of the NCTL initial teacher training database management system and matched this data against the matching trainee records. We understand that match on one key is not always sufficiently secure and definitive for test data and have applied a number of matching criteria with different 'scoring' to denote confidence in the match. For uploaded data to be matched with a record a confidence score has to be surpassed otherwise that data is open for manual review before it is accepted.
We can apply this experience and similar logic to the IBeA solution and enable raw data from tests to be loaded for pupils and would be pleased to discuss this change with the team as we understand that the STA are planning to upload skills test data in the near future.
Additional data items
The IBeA database can be updated so that users can view additional data elements such as personal data and have this data available for analysis. Equally raw data can be changed so that it is held in any format that is most suitable for comparison and comprehension. If these changes are required then Texuna will be pleased to discuss the detailed new requirements and schedule the work.
'Could have' requirements
The ability for users to perform simply psychometric analysis on the system based on raw data could be provided as an enhancement. As could further statistical analysis on raw data for a particular test or set of tests and complex psychometric analysis.
Texuna have extensive experience of analysis of education sector data leading to publication of results as evidenced by our projects to publish the NSS results for HEFCE and the publication of teacher training data from the NCTL's ITTDMS. We would be pleased to discuss further reporting requirements with the STA to determine the most effective ways to support these functional developments.
Resource Discovery Functions
The Texuna IBeA already fully supports the export of psychometric data to excel so that it may be used elsewhere.
All reports may also be exported in excel format so that they can be saved and shared with other persons who may not have access to the IBeA.
Solution
The IBeA for the STA is available and can be accessed 24/7 with the exception of any planned downtime. Texuna service desk support only is limited to the working day hours and if any changes to support hours is needed we would be pleased to discuss the requirement.
Test Creation Tools
The test creations tools outlined as 'could do' developments could certainly be supported within the IBeA module and Texuna would be pleased to discuss any requirements further with STA. Creation of tests using a test creation wizard type approach that was driven by business rules to enable creation of a 'best' test or possible test is certainly logic that could easily be included as an feature for development should the STA wish to take this further.
Online Marking Functionality
All the online marking functionality itemised is not currently provided within IBeA although the development of these capabilities can certainly be supported as a further development of the e-Assessment capabilites of the solution. This will require the expansion of the data held with further entities and attributes. Our data design is hospitable to changes such as these and to the migration, export and import of new data. Texuna would welcome a further discussion with the STA on their needs and priorities for this work.

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JISC	Education		Provide details of your company structure (e.g. an organisation chart) describing the corporate structure of the company and indicating the number of staff working in each function.	Texuna Technologies Ltd is commonly known as 'texuna' and has an established history of successful trading since the inception of the company in May 2000. We have offices in London (Head office), Ireland, Brazil and Eastern Europe. Most of the project management and delivery work for our UK clients is undertaken from the London office with support from other teams as needed. All staff across all offices are employees of texuna. Texuna will staff and support this contract wholly by staff employed by the company. The contract will be managed from the texuna London office and will be led by the most experienced staff in the company who have already successfully delivered similar contracts. An organisation chart is provided below with approximate staff numbers working in each function.	
JISC	Education		Provide a summary of the relevant technical skills under the control of your company. Also state who owns the resource and the degree of control over the resource that your company has.	Texuna will staff and support this contract wholly by staff employed by texuna on permanent contracts. Therefore texuna has complete control over all resources. Texuna would dedicate a multi-disciplinary and highly experienced senior team for the JISC project. Texuna's commitment to providing high quality solutions and services is reflected in the technical abilities of staff and focus on continual professional development. Texuna believes that the success of our projects depends upon the competency and quality of our staff resources. In order to ensure expertise, some training courses are mandatory (e.g. Software Quality Assurance), whilst others are required for specific roles and job types (e.g. PRINCE2 for project management, ITIL for support, OCJP or developers, ISEB for testing, etc.). All staff members are required to maintain an up-to-date knowledge of industry best practice through involvement with industry bodies like Intellect and Gartner and external certifications. **Development, testing and technical design:** All of texuna's development staff are top honours graduates in computing and physics disciplines. They are required to complete formally recognised programming qualifications in Oracles Java exams (OCJP previously Sun SCJP) and are encouraged to complete other internet-related technology certifications. These mandatory courses are paid for by the company and recognised through Brainbench. All of texuna's developers have extensive experience with texuna Soltex solution which is proposed for JISC, and the underlying data schematics having worked on similar projects and systems for years. All testing staff are qualified through the ISEB Testing Foundation. **Project/Account Management:** All texuna project and account managers are PRINCE2 qualified. Many have well over a decade of experience in delivering similar services. The majority of management are educated to a master's level, with some still actively engaged in academia. They establish a PRINCE2 methodology for all projects. Therefore a clear and clean method of working ensures robust communications, close collaboration and a streamlined process for all stages of a project. **Business Analysts/Solutions Architects:** All of texuna's business analysts are top honours graduates in computing and physical sciences. Technical skills include providing domain expertise, requirements gathering and analysis, and overall design. This experienced team engage in requirements gathering, consultation and analysis phases to ensure that the needs of implemented systems are known, understood and agreed. The team is also actively involved in academia, participating in research in conjunction with the University College Cork (UCC) focusing on the field of business analysis and solution design. The team adopts an agile and flexible approach, offering our clients improved service provision and performance benefits from effective system and service delivery. **Service Management:** Texuna's service managers are required to gain ITIL V3 certification. Many service desk operatives represent years of experience of supporting texuna customers and systems. All follow ITIL principles and texuna's BSI approved ISO 20000-1 Service Management System.	

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JISC	Education		Please provide details of relevant experience of providing an Enterprise data warehouse & business intelligence platform including hosting, database management systems and associated tools.	Texuna was founded by Patrick Lynch, who has an MSC postgraduate degree and thesis on the use of data warehousing and OLAP technologies to support dashboards and the Kaplan & Nolan balanced scorecard. Prior to texuna he worked on data warehouse projects within investment banking focused on operational risk. These included working with both code generators and transformation engines for ETL, and with relational OLAP and multidimensional OLAP technologies for analysis. Within texuna Patrick has fostered the development of the Soltex platform based on ETL, date warehouse and OLAP open source technology components, which have been used across most of the companies' projects over the last 15 years. Texuna's longest established client, the National College for Teaching and Leadership ITTDMS solution is an example of a robust enterprise level database management solution that has grown, expanded and changed over more than 10 years to meet changing government policy and data management demands. Originally a single annual data collection for teacher training with associated reporting, ITTDMS has grown into an enterprise data warehouse platform that manages more than 20 disparate datasets across more than 10 annual data collections, supporting 14 different user access portals. The ITTDMS is implemented using the Kimball data model approach to integrate datamarts for different classes of user. This approach also allows for easy integration with ETL tools and with data analytics software e.g. Alteryx. User access is via data collection portals each of which give a restricted view to the data and functional capabilities that are relevant to that user. User access is controlled using a hierarchical model where permissions are managed using group access rules and permissions in sub-groups are inherited. Stringent controls are supported so that all data transmission between the solution web server and the authenticated user's web browser is encrypted using industry standard SSL, via the HTTPS protocol. Sensitive data is encrypted at database level and access to sensitive data provided only to authorised users. The central purpose of the data warehouse is to collect, validate and ransform trainee and employment information from numerous data feeds from a wide variety of formats and disparate sources. 200,000 trainee data records are collected and validated through this system every year in order to produce the 'Profiles' dataset. This dataset is used to produce reports that provide key insights into higher education and school centred initial teacher training (SCITT) provider training, which in turn underpin educational funding, policy and long-term strategy. **Data Collection and Validation:** Transforming data (Including data from unstructured sources) into a well-defined format for central storage, the profiles database currently has 250 defined data fields, many of which are associated with complex validation rules to ensure data quality. When uploading data via standard data fields, a back-end validation engine will highlight any data that appears erroneous (validation rules are governed by well calculated data rules and set numeric parameters), allowing data owners to drill-down into anonymous data records in order to investigate, modify and validate data issues. The data capture mechanisms are: ◻ XML integration with HESA, HEFCE & training institutions systems and databases. ◻ Web-based fully eGIF compliant, RNIB and WAI (up to AAA) usability standards compliant forms with complex real-time validation. ◻ Workflow components to automate the processes of assigning tasks, sending reminders (e-mail, written, FAX and telephone) and monitoring progress and the resolution of any issues that arose. ◻ Extraction of centralised data to XML, Excel and other formats for upload to other external systems via websites or manual integration. **Reporting:** Real user value to the data collected is provided through the analysis websites so that the NCTL, specialist users such as Ofsted and the Providers can interrogate and report on the data and benchmark against the sector. The reporting capabilities use Mondrian data cubes to deliver multidimensional reporting on data items. The user interface enables real-time reports to be customised by the end user with the option for authorised users to save and share reports. Dashboards using standard widgets may be configured if users have a need for regular snapshots of current information. Sensitive or personal data is protected through a set of masking rules that prevent the details being shown where small numbers of trainees may be identifiable. The reporting modules utilise: ◻ OLAP reporting components for complex, real-time analysis of multi-dimensional data. ◻ The integration of GIS mapping technology to locate institutions and provide analysis based on postcode proximity. **Data matching:** Data may be transformed and loaded from a variety of sources and is supported through web services interfaces (either SOAP or restful interfaces may be used) or by direct file upload. Data is matched according to weighting rules, for example a match on an ID field may score more highly compared to a match on name and criteria are set so that a record match must achieve at least a pre-determined score to be successful. Partially matched records can then be either rejected or presented for manual checking and approval prior to loading so that data quality is maintained. **Platform:** Texuna's data warehouse and business intelligence solutions are Java based and are designed to be platform and hosting architecture independent. Our solutions can be configured to work on any enterprise level database and in a range of different server configurations. The choice of database and configuration depends on the planned delivery objectives of a given solution. This also means that our solutions can be hosted in a variety of hosting environments including cloud hosting. Texuna prides itself in utilising open source components to build our data warehouse platforms. Since inception, texuna has actively pursued and used a large number of open source libraries, components and plug-ins. These components are customised and integrated within our solutions to deliver standalone features. This enables us to grow and change our applications in a controlled way to meet the needs of the users.	

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JISC	Education		Describe the structures that your company has in place to maintain the Enterprise data warehouse & business intelligence platform once deployed.	Texuna is certified to ISO standards for Information Security (ISO 27001), Quality (ISO 9001), Environmental Management Systems (ISO 14001) and Service Management (ISO 20000-1). All these standard are audited by our external auditor British Standards Institute (BSI) and apply to all aspects of our business, the whole organisation. The application of standard, conforming and robust processes for development and maintenance of our products is a cornerstone of our business. Texuna's data warehouse platform is history managed and fully audited for compliance. This means all changes to data are stored and historic snapshot reports can be produced as at any given time or date range in the past. Reference data can be gracefully managed over time, mappings modified and extended, new data schema added, meaning the data warehouse is future proof. All analytical reports are based on broadly defined datasets from which OLAP style reports can be generated with full flexibility by nontechnical users. Maintenance and business continuity management is an important part of texuna's regular risk management and quality assurance planning. We have put in place a number of general measures to ensure robust maintenance and business continuity. Some of these measures are: □ The server architecture adopted will support business continuity so that, at its simplest, at least two identical server environments are configured. Typically one environment is for production while the other is for user testing though they can be quickly swapped in the case of a major system failure such as a hardware issue. □ Servers are protected using anti-malware protection and patch levels are maintained particularly for security vulnerabilities. □ Individual transactions are fully managed with full rollback features where a transaction has not completed successfully. □ Our backup policy is that incremental daily backups are taken and kept for an agreed period off site with the latest backup overwriting the oldest held. Monthly, quarterly and annual full backups are also taken and retained off-site for an agreed period. □ System management and maintenance processes are all fully documented. Internally texuna favours a wiki-based approach to documentation that is versioned and can be readily maintained. Full system documentation facilitates staff training and handover as needed. □ Documentation of each system includes at a minimum; o Environment and server configuration, o Maintenance and monitoring procedures, o Backup and Disaster Recovery, and o Encryption and certificate requirements Additional measures include: □ Staff training involves rotation so that knowledge of any one project is spread across the company's resources. □ Texuna's internal knowledgebase systems are hosted on secure web-accessible servers where possible so that authorised staff are able to continue working from any remote location. □ Texuna's operations are spread across multiple offices, which give the capability, in the event of an extreme incident, to continue service delivery from an alternative location. □ Sensitive data is kept encrypted in the database and the backups. □ IT infrastructure is distributed with servers housed in reliable, top quality data centres, with UPS and redundant bandwidth connections that gives us the potential for restoring and resuming business with minimal disruption.	

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JISC	Education		Provide a description of the project management methods and the general planning processes that your company uses in such deployments.	Texuna manage projects according to the PRINCE2 methodology and all texuna project managers are experienced certified PRINCE2. Practitioners and project will be managed in stages with planned milestone dates. **Project Management:** The project manager is the primary point of contact between texuna and the customer project manager and team. The project manager has key function in a texuna project, as follows: ☐ To manage and control the project design, development, configuration, implementation, testing and acceptance of the project. ☐ Management of the resources allocated to the project. ☐ To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverable product. ☐ To manage the internal communications and resource allocation and the work of the project team. ☐ To ensure texuna's quality procedures, standards and policies are followed and that project documentation is maintained. Texuna recommends that a secure document repository is setup to hold the documentation and that it is accessible by all interested parties. This can be a project wiki, hosted by texuna that can become both a repository library and also a discussion forum as required. **Agile methodology:** Texuna use an agile delivery methodology. The outcome of our analysis phase is to allocate the implementation tasks into time boxes. Allocation follows a number of principles that include ensuring that the solution components are implemented in a logical order suitable for on-time delivery. Requirements are prioritised so that must have requirements are built first and building blocks are delivered in a logical order that can be tested and then refined as needed. Our planning process is centred around on time delivery of key components so that the project overall is successful. Flexibility and responsiveness is in-built in our approach so that we can deliver the best possible solution to time and budget. **Quality Assurance:** Rigorous testing at several levels, using automated and manual tools will precede any deployment to customer accessible test environments so that we are able to maintain our strong focus on quality delivery. Automated unit-tests and regression testing procedures will be utilised during the build phase. A testing procedure (unit-test) is created any task before it is submitted to the code repository. Each time a portion of code is submitted, the new build is automatically mounted and unit-tests are triggered not only for the newly submitted feature, but for all code in the project (regression testing). This will ensure that new code does not interfere with all features and tasks already implemented. Apart from automated unit-tests and regression testing, each release is tested by our quality assurance team with a variety of manual and automatic testing procedures. Automated tests procedures are implemented for every feature, and the release is also tested manually, where applicable (this usually includes UI operability checks based on use cases and standard user behaviour scenarios). Load testing is performed according to specified thresholds with reasonable redundancy, using testing software packages that emulate server load according to predefined scenarios. Whenever a problem is highlighted by our QA team or during UAT, an issue is registered in a tracking system and immediately assessed by the development team. All high priority issues and bugs are resolved in the same release package. **Texuna internal monitoring and planning:** All customer implementation plans and schedules are published internally to texuna's operations staff. This forms the basis for our overall plan and enables a complete management of the resource requirements and timings to deliver each customer plan. There is a close working relationship between the project manager and the implementation staff. This is encouraged through the tools that we use to manage our work. Tracking tools, wikis and messaging as well as verbal contact enables the project manager to identify any risks or issues that may arise during our day-to-day work. Texuna holds an internal weekly Operations Meeting where the overall delivery planning is reviewed. This progress review is attended by all Texuna project managers and the resource managers. If there is any potential slippage (or acceleration) of any of the planned tasks within any projects this is flagged at the meeting. Where there is a risk of slippage, mitigation steps are discussed and the approach to managing the slippage is agreed. This can result in reprioritisation or reallocation of resources to address any issues of significant concern so that we maintain our customer service levels. Our projects typically include hard deadlines. We have a strong track record of on-time delivery. Our close attention to the commitments that we have made and day-to-day management practices enable us to meet our deadlines.	

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JISC	Education		Provide details of the processes your company has in place to ensure that the Enterprise data warehouse & business intelligence platform that it provides is scalable and remains competitive and responsive to requirements for the duration of any contract.	Texuna's solutions are Java based and are designed to be platform and hosting architecture independent. Our solutions can be configured to work on any enterprise level database and in a range of different server configurations. The choice of database and configuration depends on theplanned delivery objectives of a given solution. This also means that our solutions can be hosted in a variety of hosting environments. Some examples of hosting environments that are in use within our projects to host our solutions are: ☐ Hosted on a private cloud owned and managed by the clients (or heir hosting suppliers), ☐ Hosted in a data centre of choice, ☐ Hosted on texuna's cloud infrastructure. **Scalability in a cluster:** We typically recommend a cloud of virtual servers for hosting our solutions. Application server clustering can allow load balancing of the user demands across two or more application servers. Servers may be added as user numbers increase. Configuring multiple application servers in a cluster also offers a failover mechanism as, if one server should fail, then the remaining servers can manage the load, albeit with a slight risk of reduced performance. This architecture ensures the solution is scalable and should the number of users increase, more servers can be added to increase the overall system capacity incrementally and without the need to replace any components. Load balancing is monitored and managed using load balancing software to direct traffic so that the user experience is maintained. Our flexible architecture and solution design makes cloud hosting an ideal environment and we typically recommend cloud based hosting unless explicitly requested otherwise by our clients due to policy or specific needs. **Scalability in user access management:** There is no theoretical limit on the number of concurrent users if a highly scalable load balanced cluster is used. Our user authorisation and accreditation module, UDiMan is recommended for all our data warehouse solutions. It is a system designed for linear scalability, the maximum numberof concurrent user sessions possible with the UDiMan service is theoretically only limited by the number of nodes added to the cluster and how well provisioned each node is. For example, on current user sessions have a significantly lower burden on the system than transactions such as user registrations and so the number of achievable sessions per node is higher compared to number of achievable registrations. **High availability and innovation:** High or very high availability may be provided to the required specification. For highly available solutions, the majority of maintenance activities will not result in non-availability of the system. There are a few activities, such as release deployments, that do require a small amount of service downtime. The system availability time will not include scheduled and approved downtime. Any approved downtime will occur outside of the usual working hours, Texuna operates a policy of releasing all systems "out-of-hours". Very high availability can be facilitated using a zero downtime deployment methodology which is the new texuna innovative approach to deployments in critical systems. Greater than 5N uptime (99.999%) has been achieved in practice within the Department for Education implementation for the Secure Access project. Over a period of three years, 99.9994% uptime was achieved, with all downtime experienced as a result of twelve planned releases (for software updates and new systems integration). No unplanned downtime has been experienced to date. Planned downtime is typically less than an hour. Texuna has already architected and allocated resources for Zero Downtime Deployments (ZDD). The requirement is driven by a third-party private cloud provider who do not support out-of-hour deployments. The ZDD functionality is achieved based on two separate scenarios within the cluster. In the first case, only application code requires updates. In the second, code changes also require modifications to the database structure which is far more complex to achieve as all changes need proper synchronisation. This can be achieved in a more conventional manner with a NoSQL database. Although the Texuna code libraries already include the possibility to manage ersistence to NoSQL as well as RDBMS, the ZDD strategy has been designed around a RDBMS which gives better assurance on absolute transaction preservation. **Responsive to future requirements:** The texuna data warehouse platform is defined in meta data to provide a flexible data model structure, reference data files, historic data management and full audit trail of all data record updates. This allows new data feeds and collections to be integrated into the enterprise data store and for new fields and datasets to be added to the analysis reporting infrastructure. This makes the platform fully future proof.	
JISC	Education		Please provide details of relevant experience of providing consultancy services to deliver a customer reporting framework.	Texuna has experience of using customised open source reporting frameworks e.g. Pentaho Mondrian and commercial off the shelf reporting frameworks such as Alteryx. Texuna has provided a reporting framework and a consultancy services for the NCTL project. Real user value to the data collected is provided through the analysis websites so that the NCTL, specialist users such as Ofsted and the Providers can interrogate and report on the data and benchmark against the sector. The reporting capabilities use Mondrian data cubes to deliver multidimensional reporting on data items. The user interface enables real-time reports to be customised by the end user with the option for authorised users to save and share reports. Dashboards using standard widgets may be configured if users have a need for regular snapshots of current information. Sensitive or personal data is protected through a set of masking rules that prevent the details being shown where small numbers of trainees may be identifiable. The reporting modules utilise: ☐ OLAP reporting components for complex, real-time analysis of multi-dimensional data. ☐ The integration of GIS mapping technology to locate institutions and provide analysis based on postcode proximity. Texuna has a great deal of experience analysing data from the following elements of customer reporting; ☐ Customer relationship management / service desk tools such as Salesforce and with our own bespoke CRM tool called BOSCO. ☐ Survey tools – Texuna has a bespoke survey/evaluation software tool called QuestLoop. ☐ Microsoft Sharepoint. ☐ We currently integrate with UKRLP and Ofsted within our NCTL project. Therefore giving us an excellent understanding of the data and the integration application programing interface (API). Another element of the NCTL project is the integration of HESA XML, giving us a strong understanding of XML. ☐ Social Media – We are currently working for a client where we developed our own method to mine data from their user base's Facebook and Twitter feeds. ☐ Data cleansing – Our NCTL project supports complex data cleansing algorithms, data matching and uses stringent record validation to ensure data quality is kept high. ☐ Integration of key data sets – Our ITTDMS project has grown into an enterprise data warehouse platform that manages more than 20 disparate datasets across more than 10 annual data collections, supporting 14 different user access portals from across different key data sets.	

					Picture number
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	Sector	**Solution**	**Question**	**Template Response**	

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JISC	Education		Describe the structures that your company has in place to ensure an effective handover to in-house teams once it has been delivered. This should effective collaboration and engagement with in-house staff.	Texuna manage consultancy services according to the PRINCE2 methodology and all texuna project managers are experienced certified PRINCE2. Practitioners and project will be managed in stages with planned milestone dates. The project manager is the primary point of contact between Texuna and the customer project manager and team. The project manager has key function in a Texuna project, as follows: ☐ Management of the resources allocated to the project. ☐ To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverable product. ☐ To manage the internal communications and resource allocation and the work of the project team. Texuna assures effective project handover by: ☐ Formal project induction and continuity process with participants especially where organisational and/or functional changes are envisaged. ☐ Inclusion of key users from the kick-off phase, with a project collaboration environment to keep them involved in the project ownership, progress and deliverables to facilitate the handover. ☐ Establish a stakeholder committee to steer direction and approvals, with formalised commitment of in-house managers, architects and third parties to join-up adjacent project streams, systems support staff and process owners. ☐ Delivering a learning centre website with user friendly documentation and handbooks, video tutorials, FAQs, discussion forums to capture 'tacit' knowledge. ☐ Using show and tell sessions to address initiation hurdles. ☐ Providing real-time first line support during the post go-live stabilisation period. Texuna recommends that a secure document repository is setup to hold the documentation and that it is accessible by all interested parties. This can be a project wiki, hosted by texuna that can become both a repository library and also a discussion forum as required. Texuna use an agile delivery methodology. The outcome of our analysis phase is to allocate the implementation tasks into time boxes. Allocation follows a number of principles that include ensuring that the solution components are implemented in a logical order suitable for on-time delivery. Requirements are prioritised so that must have requirements are built first and building blocks are delivered in a logical order that can be tested and then refined as needed. Our planning process is centred around on time delivery of key components so that the project overall is successful. Flexibility and responsiveness is in-built in our approach so that we can deliver the best possible solution to time and budget. Rigorous testing at several levels, will precede any deployment to customer accessible test environments so that we are able to maintain our strong focus on quality delivery. Whenever a problem is highlighted by our QA team or during UAT, an issue is registered in a tracking system and immediately assessed by the team. All customer implementation plans and schedules are published internally to texuna's operations staff. This forms the basis for our overall plan and enables a complete management of the resource requirements and timings to deliver each customer plan. There is a close working relationship between the project manager and the implementation staff. This is encouraged through the tools that we use to manage our work. Tracking tools, wikis and messaging as well as verbal contact enables the project manager to identify any risks or issues that may arise during our day-to-day work. Texuna holds an internal weekly Operations Meeting where the overall delivery planning is reviewed. This progress review is attended by all Texuna project managers and the resource managers. If there is any potential slippage (or acceleration) of any of the planned tasks within any projects this is flagged at the meeting. Where there is a risk of slippage, mitigation steps are discussed and the approach to managing the slippage is agreed. This can result in reprioritisation or reallocation of resources to address any issues of significant concern so that we maintain our customer service levels. Our projects typically include hard deadlines. We have a strong track record of on-time delivery. Our close attention to the commitments that we have made and day-to-day management practices enable us to meet our deadlines.	
JISC	Education		Provide details of the processes your company has in place to ensure that the customer reporting framework it provides is scalable and responsive, and remains competitive and adaptable to changing requirements.	Data model management, the key factor for scalability and responsiveness, is central to all planning and delivery. Universal datasets will be engineered to include all the fields for both current and future reporting scenarios. Redundancy will simultaneously be avoided to guarantee speed and performance of queries. Data model granularity will be sufficient to permit transaction level drill-down; ☐ Data Warehouse will be engineered to 'the single version of truth' for financial reporting. Data quality investigations will eliminate vulnerabilities in well-designed report, including back-testing historic reports against data. Data consistency will be verified at every stage of the ETL process. Alternative data flows and multiple sources like auxiliary excel files will be identified and eliminated to avoid nonsensical or conflicting financial reports. ☐ BI tool choice will be tailored to the right combination of flexible and ad-hoc reports. ☐ A strong bias toward more configuration and less development will maximise future options. Modern BI and ETL tools provide sophisticated configuration capabilities which will be heavily prioritised over any custom programming of complex transformation routines. This also assures quicker debugging, shorter delivery cycles, increase adaptability to changing requirements and lower long term support costs. ☐ Rigorous testing at several levels, using automated and manual tools will precede any deployment to customer accessible test environments so that we are able to maintain our strong focus on quality delivery. Apart from automated tests and regression testing, each release is tested by our quality assurance team with a variety of manual and automatic testing procedures. Automated tests procedures are implemented for every feature, and the release is also tested manually, where applicable (this usually includes UI operability checks based on use cases and standard user behaviour scenarios). Whenever a problem is highlighted by our QA team or during UAT, an issue is registered in a tracking system and immediately assessed by the development team. All high priority issues and bugs are resolved in the same release package. Texuna recommends using the Alteryx solution to integrate with internal and external data sources.	

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JISC	Education		Please provide details of relevant experience of providing consultancy services to deliver an effective finance reporting framework to enable statutory, budgetary and management reporting.	Texuna has in place a dedicated consulting team capable of complex finance reporting delivery. The team is balanced with financial methodologists that bring in best practices of statutory, budgetary and management reporting as well as implementation specialists with deep knowledge of business intelligence systems. Almost all Texuna's staff are university graduates, half of which have postgraduate qualifications including master's degrees and/or MBA degrees, and professional qualifications such as CMA Certified Management Accountant and SAP BI certification. A good practical example of this experience is Texuna's ITTDMS project for the National College for Teaching and Leadership (NCTL). Texuna's ITTDMS is an enterprise class data warehouse that allows the NCTL to: ☐ Centralise key NCTL data sources for history management and for analysis purposes. ☐ Maintain master files of provider's details and contact records. ☐ Centralise funding allocations so that trainee places can be easily allocated against all sector providers. ☐ Conduct early census of trainee numbers against budgeted allocations, providing real-time management reports to NCTL directors confirming that there are no funding mismatches, and that priority places are adequately provided for. ☐ To collect statutory returns from providers with the least burden possible. ☐ Provide useful benchmarking tools for providers against similar institutions and the sector. ☐ Conduct ad hoc reporting to provide accurate and robust responses parliamentary questions for ministers with a high level of confidence. These features have been successfully delivered for more than 10 years.	
JISC	Education		Describe the structures that your company has in place to ensure an effective handover to in-house teams once it has been delivered. This should include experience of effective collaboration and engagement with in-house staff.	Texuna assures effective project handover by: ☐ Formal project induction and continuity process with participants especially where organisational and/or functional changes are envisaged. ☐ Inclusion of key users from the kick-off phase, with a project collaboration environment to keep them involved in the project ownership, progress and deliverables to facilitate the handover. ☐ Establish a stakeholder committee to steer direction and approvals, with formalised commitment of in-house managers, architects and third parties to join-up adjacent project streams, systems support staff and process owners. ☐ Delivering a learning centre website with user friendly documentation and handbooks, video tutorials, FAQs, discussion forums to capture 'tacit' knowledge. ☐ Using show and tell sessions to address initiation hurdles. ☐ Providing real-time first line support during the post go-live stabilisation period.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Provide details of the processes your company has in place to ensure that the financial reporting framework it provides is scalable and responsive, and remains competitive and adaptable to changing requirements.	Texuna propose a modular EDW architecture where each module is independent. This will allow software packages or services to be interchangeable as long as proprietary vendor lock-in is avoided. Open standards are a must, and Open Source Software can be used where mature and reliable. ETL must be cheap, effective and expose metadata, giving lots of schedule/automation support. Only a few select users will need to build expertise, making it efficient to train staff, and the UI is less important in relation to the features it makes available. The analysis tools must be familiar and friendly to lots of existing BI users and consumers. Therefore existing knowledge/skills should be reused, so priority and support should be given to Business Objects and Tableau. Pentaho Data Analytics and Reporting for BI could also be considered as an alternative, well established, open source tool, particularly for non-Jisc staff use (i.e. extending functionality to Customers etc.). Texuna have much experience deploying reports to the sector based on Mondrian cubes and MDX queries (used by Pentaho BI). Texuna proposes the AWS Redshift for DW service (which is based on PostgreSQL), Pentaho Data Integration software for ETL, together with Pentaho Metadata Editor Software or Semanta service for metadata management later in the project lifecycle. We feel these will best meet the needs for the Jisc EDW. Using Amazon Redshift for the initial EDW deployment is cheap, immediate, fully managed, highly performant, and scalable to petabytes if necessary. This is a very simple and cost-effective way to efficiently analyse data using various business intelligence tools in a dimensional SQL database. Redshift significantly reduces the costs of hosting, storage and maintenance. With the benefit of extreme parallelism (MPP), columnar data storage for fast analytics, smart data compression to eliminate sparse storage, and inbuilt optimisation of dimensional star/snowflake data schema, Redshift is a cheap COTS service that eliminates the very complex problem of designing an EDW. The setup process is very easy and fast (just minutes to provision a functioning 16-node cluster), and you can connect to the system via any Postgres compliant client. Pentaho Data Integration is an open source ETL tool with commercial support. Texuna have tested it against several alternatives (comparison report available) and think its extract, transform and load capabilities of the desktop client and the processing server best match the requirements of Jisc, and we have deployed the server on AWS and connected it to Redshift without issue. Pentaho's optional Enterprise support program will provide plenty assurance to Jisc if required. Pentaho Data Integration prepares and blends data to create a complete picture of your business that drives actionable insights. The complete data integration platform delivers accurate, "analytics ready" data to end users from any source. Its visual tools eliminate coding and complexity, and allows you to combine traditional structured data and unstructured and semi structured big data together and put it at the fingertips of business and IT users alike. The SEMANTA service for Information management could be appropriate in a mature data governance environment. But it may be expensive at the early stages of the corporate information management journey where more basic online documentation might be sufficient, at least initially. A thorough comparison with alternatives including Pentaho metadata reporting should not be immediately dismissed, and any useful ETL tool that manages data sources and transformations should be able to expose its metadata to any 3rd party reporting tools. Good data governance means business definitions and their life-cycles must be managed and accessible to relevant users. Any metadata navigator such as Semanta's Report Catalogue should organise Jisc's entire reporting portfolio across all platforms so that it's easy to search and navigate. The Data Dictionary is able to load, organise and unlock information about data structures from modelling tools or databases and make it accessible to the analytics and BI users.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Based on Jisc' situation, which hosting model would you propose, for example in-house, or a cloud-based solution?	Texuna propose Amazon Web-Services' Dublin-based data centre for hosting the main Jisc EDW. A cloud-based data warehouse solution on Redshift will be amazingly cheap and fast to get up and running - a totally agile process. Historically, traditional data warehouses required significant time and resource to procure, design, install, and administer especially for large datasets. Building, maintaining, and growing self-managed, on premise data warehouses has always involved debilitating costs and the establishment of specialist non-transferrable skills-this is the licence-based cost model where the capital expense is realised before any successes are evident. Redshift not only significantly lowers the cost of a data warehouse, but also makes it easy to analyse large amounts of data very quickly, with options to elastically add resources for special workloads-on demand. This is a success-based cost model with a usage-based architecture. You only pay for success, and if properly set up Jisc can avoid vendor lock-in. Redshift supports both traditional normalised databases as well as dimensional structures with inbuilt optimisations. Both familiar SQL-based clients and business intelligence (BI) tools using standard ODBC and JDBC connections are supported, alongside OLAP tools with MDX and SQL support. Queries are distributed and parallelised across multiple physical resources. Amazon automatically patches and backs up the data warehouse, storing the backups for a user-defined retention period - all managed through the Amazon online administration console. Automated replication and continuous backups enhance availability and improve data durability and can automatically recover from component and node failures. Texuna will provide a Pentaho server on a dedicated AWS EC2 within a Jisc VPN. Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. This allows Texuna or Jisc to scale ETL up or down to handle different workloads and requirements or spikes in popularity without needing to forecast traffic. Auto Scaling helps ensure the correct number of EC2 instances are available to handle the application load. This is managed by creating collections of EC2 instances, (aka Auto Scaling Groups), ensuring limits on minimum and maximum resource availability. Where existing licences are available for on-premises tools like SAP BO or Tableau, then either these can be migrated to AWS on separate EC2 instances (Bring Your Own Licences), or they could continue to run in-house depending on available bandwidth and network latency. On-premises, but where possible use cloud for EDW and analytics/cubes unless licences already exist.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	If a cloud based model is proposed, services are broadly categorised as IaaS/SaaS/PaaS. What would you propose and what are its advantages?	Texuna's proposition is a mix of IaaS, SaaS and PaaS - but all from AWS West Europe region to eliminate bandwidth and latency issues between key components in the overall architecture. AWS at its most basic is an IaaS service which reduces costs and increases speed of development and deployment. The main advantage is that only required computing resources are rented and at the same time new resources can be rapidly allocated if needed. AWS offers many services like Route 53, Virtual Private Cloud, Elastic Load Balancing, etc. allowing to concentrate on development rather than infrastructure support. Texuna's key proposition is the AWS Redshift EDW which can be considered to be SaaS - so Amazon are responsible for the entire stack including backups. Texuna recommend using AWS IaaS for main server needs such as ETL and any cloud based analysis and reporting services. This means that full control can be taken over the entire stack from the Virtual Machine through the OS (CentOS preferred by Texuna) and the application server. However IaaS patching needs to be maintained by Jisc or Texuna. To avoid the need to maintain patches or if there are vendor-specific requirements (e.g. Microsoft Stack) that are well supported by AWS, then it may be preferable to run an AWS PaaS where the virtual machine instances, O.S. and application/web servers are automatically provided and patched by Amazon. For example, the SAGE implementation and/or the SAP BO implementation, if moved to the cloud, might be ideal candidates to deploy on PaaS.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	If a cloud infrastructure is proposed, what portability options can be offered to re-host in alternative infrastructure?	Any IaaS or PaaS deployments on AWS can easily be migrated to alternative vendors and/or in-house. For example, Texuna typically make IaaS deployments as fully packaged RPMs on a simple CentOS VM. Redshift is the only SaaS being proposed by Texuna, but it is based on PostgreSQL, which is Open Source Software, and Redshift is fully compatible with PostgreSQL8. So the SaaS implementation can be easily migrated to any other PostgreSQL server using SQL Workbench tools like SQL Workbench/J. Texuna run many PostgreSQL databases which can be installed on any Linux or Windows server, in-house or hosted, private or public cloud, IaaS or PaaS. Pentaho Data Integration server can also be installed on any Linux or Windows server, and Texuna would recommend installing as a self-installing RPM on a PaaS Linux machine so it is trivial to migrate it elsewhere without incurring additional licencing costs. To avoid vendor lock-in, Texuna would using the many thousands of AWS-specific tools and features available unless they offer outstanding cost-benefits. That is a business case would be needed before considering any one in production use.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Jisc provides the JANET network nationwide - can this be leveraged as part of the solution?	Texuna believes Jisc cloud hosting policy fits exactly with the proposed Redshift EDW on Amazon Web Services, and it will directly benefit from the AWS-JANET network connection. AWS offers a broad set of on-demand global compute, storage, database, analytics, application and deployment services, allowing you to scale up and down to meet your organisation's needs. The AWS EU west region in Dublin would host the Redshift EDW for Jisc, and be directly connected via JANET. Being an active user of AWS, Jisc has developed a web portal specifically for research and education, in collaboration with AWS and Arcus Global. The developed portal enables researchers and Jisc personnel to effectively manage user access to AWS services in one central place, as well as control costs and manage budgets. The AWS-JANET connection will maximise network performance between AWS, Jisc and its partners and clients on the JANET network when interrogating the EDW. It is easy to maintain a VPN between an internal Jisc network and the EDW environment on AWS, even where additional compute and storage nodes are added for dedicated ETL or analysis applications. Access to these services is enhanced by Amazon's connection to the Janet network through peering, ensuring low latency and a consistently high level of service. Jisc peering with AWS provides managed bandwidth for Janet members connecting to the EDW on AWS cloud, meaning institutions can leverage the flexible pay-as-you-go AWS Direct Connect service. This gives Jisc's users a high capacity, low cost network to connect to the technology resources provided from AWS' EU west region in Dublin, Ireland. Texuna believes JANET users already taking advantage of AWS cloud resources include at least The University of Surrey, University College London, Newcastle University and Edinburgh University.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We don't want our staff to carry out software updates out-of-hours. What approach can you suggest to allow updates during normal working time?	Amazon fully supports AWS Redshift and provides all necessary updates. AWS Redshift is fault tolerant and available even if some nodes are switched off for updates. Texuna envisage Zero Down Time (ZDT) on Redshift, in that batch data loading would not take the query service offline during new data loading. It can be considered ready for real-time loading and continuous analysis. Furthermore, once set up, any changes to the dimensions should be made via data updates to the existing common dimension table structures rather than as schema changes. Schema changes should not be required if they are future proofed by some parallel enterprise data modelling work focused on these dimensions and master data. Pentaho Data Integration (PDI) may be configured in cluster and can be updated one node at a time while the remaining cluster nodes will remain working as normal - effectively giving ZDT but at the price of additional support licences. However a clustered ZDT ETL server should not be required. All ETL jobs are essentially designed offline on a Desktop designer (Pentaho Spoon), and ETL jobs are most likely to be batched overnight (similar to a traditional DW). There doesn't seem to be a requirement for continuous real-time ETL (as with new Big Data implementations). Therefore office hour's downtime on a single node configuration should be permitted without any issue for the PDI ETL server as the data loads can be considered low. Analysis services may be looked at more closely - but the Texuna proposal of multiple dependent data marts (e.g. SAP BO, Tableau, Jisc Digital Service, etc.) means that downtime on any one will not impact any of the other data marts as each should depend only on the EDW and common dimensions therein. Additionally, configuring new reports and analysis on a DataMart is a metadata update rather than software update and typically new releases can be made without downtime for software updates. This means that the majority of maintenance and updates can be done without downtime.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We expect to see growth in data volumes, how to support scaling up to larger data volumes?	Data storage is no longer a bottleneck in the age of Big Data technology, where the ability to store ever greater volumes of data is easy to provision particularly on cloud services. The biggest issue to resolve with growing volumes of data is efficient analysis of ever larger datasets. The Redshift EDW handles this through massive parallelism. If you would like to increase query performance or respond to CPU, memory or I/O over-utilisation, you can increase the number of nodes within your data warehouse cluster via the AWS Management Console or the Modify Cluster API. When you modify your data warehouse cluster, your requested changes will be applied immediately. It is therefore a fully automated scaling service, ready to respond to Jisc's performance needs. And dependent data marts can be architected to keep volumes and analysis performance acceptable by dividing up regular analysis tasks across different analysis environments. Because these data marts can be deployed on regular EC2 instances, these can also be provisioned elastically, allowing additional peaks in load to be easily met with additional computational power. A traditional bottleneck in EDW has always been the night time batch load window for the ETL tool. With the advent of Big Data technology and real time data loading, the Redshift EDW cluster will remains available for read operations while new data is being bulk copied and inserted. When actually scaling up or down the EDW to a larger cluster with more nodes, the entire cluster is simply replicated in a massive parallel process to a new cluster with a different number of predefined compute and storage nodes. When the larger cluster is ready, the smaller cluster will be turned off and be temporarily unavailable while the canonical name record is redirected to the new data warehouse cluster - typically this downtime lasts only a few minutes during a predefined maintenance window.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What approach would you recommend for provision of non-production environments e.g. development, test etc?	Texuna have 15 years' experience managing the consistency of data in production EDW environments for businesses and clients. Our solutions are designed to provide maximum confidence by providing a well-defined process to allow updates to data, software and any business logic deployed through reversible steps and release packages. This is extended to transformations applied to live data, where new scripts themselves are packaged as software releases for deployment into development, test/UAT and production environments. For Jisc we recommend one of two possible approaches to provision non-production environments: Separate Development and Test databases are placed within the same AWS Redshift instance (virtual machine cluster). Typically this works well for an EDW with medium size data and moderate workload. The Redshift cluster is just powerful enough to handle development and test environments cohabitating with the Production database environment. It is also predicted that workload on dev and test environments will be ad-hoc and low, and resource usage on these database can be restricted so as not to impact the Production database. If the EDW data size becomes large and the performance load is high, then only at that stage would the Development and Test environment databases be reorganised into separate AWS Redshift instances. Pentaho Data Integration server has access to all environments. Transformation is create/updated/tested using connection to dev or test environments. When the ETL process is verified and confirmed then the connection is changed to point to Production environment and the older ETL processes simply cancelled. Because design is done offline on the Desktop Designer, each design can also be packaged for a configuration manager to provide source control. Pre-configured connections for Production, Test, Development areas are used for scheduling tasks within a VPN. Once an ETL task is tested, it is moved to the Production area where connections its use are switched to real data. Because Texuna's EDW architecture includes the storage and retention of all historic data from all source systems prior to any transformations, it also means that any recent transformations can be isolated and rolled back from the EDW, and new transformations rerun on the unaltered retention data. This means that there is no danger of any irreversible data loss being suffered. There are also automated snapshot backups taken of the Redshift EDW so that the entire transformed database does not need to be recreated in the case of misadventure, and rollback will be easy to achieve. Lastly, because the analytical tools can be run on EC2 instances, simple snapshots are also available, and temporary development and test environments can easily be turned on and off so that Jisc only pays when there are significant changes and releases being made to the analysis tools and environments.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What approach would you recommend to performance tuning and what tools can be made available?	Metrics for compute utilisation, storage utilisation, and read/write traffic to your Amazon Redshift data warehouse cluster are available free of charge via the AWS Management Console or Amazon CloudWatch APIs. The Cloudwatch custom metric functionality also allows more bespoke monitoring options to deal with performance optimisation and troubleshooting. Further Redshift provides information on query and cluster performance via the AWS Management Console. It is easy to see which users and queries are consuming the most system resources and this gives room to diagnose performance issues. The resource utilisation on each of the EDW compute nodes can be monitored long term to ensure that you have well-structured data and query plans that are well balanced and optimised to work across all available EDW nodes. Because Jisc data is likely to be in gigabytes rather than terabytes or petabytes, Texuna feel that sophisticated performance tuning will not yield much benefit compared to the cost and time of sophisticated monitoring. Even if data volumes grow into terabytes, the Redshift EDW will not in any way struggle with these data volumes - even in a real time warehousing scenario.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What approach would you recommend to updating production software so as to minimise service outages.	Some of the issues raised in this question are already addressed in Question 5 above, which should be seen for reference to Zero DownTime (ZDT). Unless there is a need for extensive real-time data loading and transformation, ZDT should be easy to achieve for the ETL tool where workloads are typically scheduled in batch windows. Where real-time loading and transformation is required, then Question 5 above addresses the possibility to cluster the Pentaho DI ETL tool to achieve ZDT. At the EDW level, Amazon fully supports all software patch updates to Redshift, and Texuna would not architect any software logic for deployment within the EDW - it will merely serve SQL and MDX requests from OLAP data marts where the business logic is stored. AWS Redshift is fault tolerant and available even if some nodes are switched off for updates. Because analysis is done across different dependent data marts (SAP BO, Tableau, Pentaho BI, Jisc Digital Services etc.) than any downtime in one service will not result in downtime on another, ensuring less impact across all users. Should an analysis service become mission critical (Jisc Digital Services for example), relevant analytical services can be run on a PaaS or SaaS basis on AWS, and new instances can be spun up live with new versions of software so they are already live before older services are killed and traffic redirected to the new instances. Therefore ZDT can be achieved on analytical services if required.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Recovery from errors: from time to time may need to recover back to previous database state - what can be offered as best practice in this area?	Texuna's architecture diagram clearly demonstrates that raw data taken from source systems is retained indefinitely in its source state as a Mirror within the EDW. Subsequent transformations are stored within the data marts of the Presentation Layer. Any errors remain only with the transformed data within data marts and not on the mirrored source data (which provides a loading audit trail). This means that transformations can easily be reversed and re-run if errors are found or any other modifications become desirable. This allows the EDW to be 'retransformed' within the EDW and not "on-the-fly" from time to time without reloading data from source systems should this functionality be desired. Therefore a full audit trail of source data as well as transformations can be maintained within the EDW. Further assurance is given by the backup and snapshot policy that is applied to the EDW on Redshift. Redshift replicates data within the EDW cluster when it is loaded and also continuously backs up your data to S3 so there is never any danger of losing data. Redshift always attempts to maintain at least three copies of your data (the original, the replica on the compute nodes, and a backup on Amazon S3). Redshift can also asynchronously replicate your snapshots to S3 in another region for business continuity and disaster recovery should this level of certainty be desirable. Of course backups can also be taken back in-house if desired. Although by default Redshift retains EDW backups for only one day, it is configurable to be as long as 35 days. All the automated backups remain available within this retention window that you configure. To achieve a full restoration, a completely new data warehouse cluster is provisioned automatically by Amazon, and the backup data selected is automatically restored there. Backup storage is provided free as long as the backups are less than the total size of storage on the active nodes in the live data warehouse cluster. Extended backup storage for longer retention periods is subject to additional fees and is configured using the AWS Management Console or the Redshift ModifyCluster API. Because Redshift only backs up data that has changed, most snapshots only use a small amount of the free backup storage.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We considering different data models, e.g. INMON, Kimball. What data model would you recommend, given our requirements?	Certain aspects of the Jisc requirements suggest the Kimball approach will deliver better value for money and immediate return on investment if the project is subject to some long term planning and a shared view of key dimensional data alongside the development of a high level enterprise data model over time. - An agile approach to delivery means a bottom up approach based on real data with priority going to the most pressing business needs. Kimball's data marts and small subject denormalised schemas are easier to model than Inmon's Corporate Information Factory and large enterprise-wide normalised schema. Therefore, Kimball's approach allows for faster time to value with iterative delivery cycles and lower start-up costs associated with data warehouse modeling. - Jisc has surfaced the idea of a Minimum Viable Product approach - highlighting the need to deliver basic functional requirements that can be improved on successively over time. Furthermore the idea of minimum viable quality should also be considered for data quality, particularly in respect to less structured data. This means that the quality of the Enterprise Data Model will be imperfect at first but will be expected to continue to improve over time. - Jisc reporting needs to address several different audiences with differing requirements. Kimball's bottom-up view is focused on certain business processes and user groups whereas Inmon's top-down view is much more driven by enterprise level needs. By definition the Kimball approach first addresses only the most urgent reporting needs, so that return on investment is immediate. Costs should therefore be matched to the level of usage and success, and not subject to the top down definition of a Corporate Information Factory as an end in itself. - Jisc corporate systems are a concoction of merged solutions with the historic acquisition of business units. A heterogeneous landscape is less amenable to a top down CIF definition. Kimball's bus architecture that links data marts through the use of conformed dimensions is a far more feasible and realistic strategy. There is much higher risk to EDW success if the Inmon integrated entities model is adopted with time and money spent trying to understand all the complex relations up front. Ultimately, the Kimball architecture is much more flexible and lower risk within the context of a heterogeneous and evolving / non centralised systems landscape, and is more likely to be easy to understand and administer by existing Jisc staff.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We recognise that the Data warehouse cannot exist in isolation. What else do we need to put in place to achieve our high-level business goals of consistent timely and trustworthy data?	To improve its information maturity level as an organisation Jisc should establish a data governance framework to ensure the availability, usability, integrity, consistency, auditability and security of data. The main functions of the framework should: - Understand and manage strategic and tactical data, data ownership and priority setting for data projects - Define day-to-day activities of creating, using and retiring data - Describe how, when and by whom data was received, created, accessed, modified and/or formatted - Determine whether data is fit for its intended use, including completeness and business-rule compliance - Implement processes to cleanse, transform, integrate and enrich fresh data across subject areas - Address security and privacy compliance across integrated subjects - Manage master data by examining data assets and relationships that define enterprise operations An executive body needs to be put in place to manage the framework – consisting of a data governance board as well as set of tools to facilitate the work. The governance board is responsible for: - The Organisation: a clear charter, with roles and responsibilities - Formal policies, processes and standards: security and regulatory compliance, data definitions, disputes resolution, arbitration and escalation points - Measurement and monitoring: data quality metrics and key performance indicators to measure maturity over time - Change management: communication plan, training, updates Relevant tools include: - A business glossary - A data dictionary - A metadata repository - Data quality scorecards	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We see industry trend are toward hybrid databases e.g. SQL/Hadoop, what are your recommendations to meet our needs?	Hadoop with HDFS (Hadoop Distributed File System) and MapReduce significantly simplify the processing of colossal and/or real-time structured and unstructured datasets which could be problematic to handle with generic SQL or NoSQL on a standard server. Hybrid data warehouses that blend structured and unstructured data within a common warehouse have become much more widely used even without the use of new Big Data tools such as Hadoop/Cloudera etc. The driver of the trend is the corporate view of data as an asset. The key is the nature of the data, not the technology used to drive the hybrid model. Texuna's proposal brings the benefits of both approaches. Redshift is ideal for large volumes of structured data that needs to be persisted and queried with high performance using standard SQL and existing BI tools. Amazon have already modified PostgreSQL into a massively parallel processor with column oriented analysis features, delivering huge advantages. Texuna also suggest the use of a MongoDB as a NoSQL to capture all the data from unstructured and semi structured sources (including text files and Ofsted PDFs for example) so they can be persisted within the EDW project and be available for further analysis and structured codification where possible. This combination of Redshift and MongoDB will give a central target for business analysts to find all data and a single version of the truth that can be exposed for the purposes of exploratory analysis and modelling. MongoDB can be seen as a short term staging area for data that might not have long term value (such as log files), but can also be used to integrate into a single view of data across different source systems for long term persistence, but which may not be worth creating a structured dataset from (i.e. minimum viable quality - e.g. a per customer view of their website, linked in profiles, CRM emails etc. that give valuable context during customer calls, site visits, or even within a self-service Jisc Digital Service). Amazon's Elastic Map Reduce (EMR) is a great service that is ideal for processing and transforming unstructured or semi-structured data at scale, which can be used to codify text and structure it for subsequent inclusion to the structured schema of the Redshift database. However Amazon's S3 distributed storage can also be used for relatively transitory datasets that might not be fit for purpose for long-term storage. The cost benefit of using EMR needs to be evaluated however, as it is typically deployed only for massive computation loads or real time services on terabytes of data, rather than for handling text across gigabytes of data. A MongoDB based service may be adequate for most of Jisc's basic needs with unstructured data. For example, the text mining of a central Learner Record Store fed from the Tin Can API might benefit from EMR if it was run across a UK-wide population of students, but might be overkill to analyse the data across a small number of colleges. So in some respects each problem or opportunity needs to be understood within its own context, rather than over-engineering the core EDW project for all possibilities. A long term roadmap can easily provide for the expansion of the warehouse concept after it has proven that it can deliver on short term requirements and simultaneously delivery of common dimensional view of the business and a high level enterprise data model.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Currently Jisc is using Alteryx as a point solution, which ETL tool(s) would you recommend for our centralised solution.	Solution provided by Texuna has a modular structure with any component independent from each other. If some teams in Jisc uses Alteryx and wish proceed with this tool, there is no reason to disallow this. Following our own evaluation of Alteryx, and a comparison with leading alternatives Pentaho and Talend, we in Texuna believe that Pentaho Data Integration tool will be a far superior choice for Jisc to build a centralised EDW. Pentaho Data Integration (PDI) is built on top of one of the most popular open-source ETL tools (Kettle) as an optional commercial support subscription. The PDI desktop client - Spoon - is a designer tool with a nice, intuitive user interface that hides complexity yet has plenty options for more sophisticated jobs and extensions. PDI has hundreds built-in components for connections, transformations and controls, unlike Alteryx which is mostly focused on a pleasant and simple user experience. PDI also provides excellent support for integration via Web Services, covering both REST/JSON and SOAP/XML. This is an important consideration for Jisc with its many partners in the education sector. PDI also has extensive support of programming languages and plug-ins - unlike Alteryx which doesn't easily support such extensions. PDI breaks boundaries and allow integration with any existing or emerging future 3rd party data sources. This is a fundamental requirement for a centralised system built with scalability in mind. Pentaho and PDI also has a large and active community providing access to thousands of independent DW and ETL experts. Many of the ETL plug-ins are community developed, in addition to the hundreds of packaged plug-ins available under commercial licence. The PDI forum is very active and contains 20,000 topics and 80,000 posts. Alteryx on the other hand has less than 1,000 topics on their forum - most of which go unanswered. Texuna's experience is that an active community is a critical aspect of a tool for the successful management and maintenance of the EDW by client staff if you want to avoid vendor lock-in. Talend is also a very deep and flexible tool, however our evaluations show that it is much more complex to understand in comparison to the PDI. From a cost perspective, the PDI is also a considerably cheaper option to both Alteryx, Talend.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Some data sources are with external partners, who are outside of Jisc and our secure network. How can we handle: (a) the process of collecting regular data feeds from these sources, in a way which is compliant with their own data/information security policies - which technologies are most appropriate - have you examples of doing this already? (b) Reliably recording origin and timeliness and conveying this information to users of the data?	The process of collecting regular data feeds from a range of partners is expected to need a number of integration methods, especially if there a service already exists. Texuna have years of experience of working with different technologies, such as REST/JSON, SOAP/WSDL, RDF/linked data, SFTP feeds and propriety integration methods. Furthermore, this is with a diverse range of Educational data and partners, The process of collecting data feeds can be implemented to best suit each particular partner and existing services, a 'best of breads' approach. Texuna are strong advocates of open standards, and use a Service Oriented Architecture (SOA) model as a set of principles and methodologies for designing and developing software in the form of interoperable services For successful integration, it is imperative that data schemas, metrics/calculations and interdependencies are defined, understood and adhered to. Texuna conduct extensive analysis of historic granular level data from legacy databases to ensure this. Three pertinent examples, firstly includes Texuna's Initial Teacher Training Data Management System (ITTDMS), which is NCTLs flagship data warehouse. It collects, integrates and collates data from a number of complex and disparate systems including 2000+ data providers. This has expanded from one data collection exercise and integration process in 2008, to more than 15 collections and over 20 disparate data cubes incorporating numerous data sources. The reporting engine and features on the warehouse allow NCTL to perform complex analysis including real time, snapshot, year on year, trend analysis and performance benchmarking. Of particular relevance is the real time integration with: - The Higher Educational Statistics Agency (HESA) Aardvark data warehouse, which is in turn integrated with Universities Student Information Management Systems (SIMS). Via SOAP web services for student data - DfE's EduBase system via SOAP web services for schools data - HEFCE student record system. Via SOAP web services for student data - Pearson Vue's Skills Tests national exam results systems. Via SFTP files and nightly scripts for exam results - General Teaching Council of England (GTC) (now part of NCTL). Via web-services interface with the GTC data system for student data Texuna's track record is not just focused on the HE or school's sector. Texuna has implemented a number of frameworks for data integration for the FE sector. The Education and Training Foundation Texuna solution for the staff census collection and publication/reporting was built to integrate data from the whole FE sector. This incorporated 30 different formats, including .CVS, .TSV, fixed length and XML. Integration methods varied from web services, to automated processes around emailed attachments, and on to manual upload processes. Again the focus was on accommodating the wide ranges of partner needs from 20+ HR software providers. Security processes and policies for these differing integrations have varied dependent on the service and sensitivity of data. This is usually agreed as part of the solution analysis phase, often involving RMADS reviews, and independently verified by penetration testers. For instance, transport based encryption (Standard HTTPS SSL or SFTP) is mandatory, but additional security is provisioned dependent on the service. For instance, a combination of: - Specific login or authentication credentials - Message-based encryption (mutual certificates used to encrypt message payload at the interface level) - IP restrictions (only allowing access to a specific service or resource from specific addresses/machines) The origin, timeliness and other metadata of a data import is recorded via logs of feeds stored within the warehouse. Where applicable, it is also common to log unsuccessful integration or synchronisation attempts. This detailed metadata can be served up to end users via Pentaho DI allowing for the timeliness and reliability of the data to be reviewed. Alternatively, a derived reliability rating can be presented based upon a set of business rules. How is this available in dashboard or for analysis/feedback to back office or to supplier etc? Texuna propose to make each of these existing integration plug-ins available to Pentaho DI so that they can be easily managed by the visual UI of the tool.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Change management: presently we receive data from many different owners who have their own ways of working and their own systems ranging from Excel to SAP. How can we make sure we achieve an agreed common understanding of the data by working with the owners? What are the steps in the change management process?	Lot 1 - Data Warehouse Question 3 already deals with fundamental aspects of a data governance framework to develop a common understanding of the data. This involves the implementation of an executive body. The change management process needs to start by appointing a governance board from key system stakeholders. They also need to adopt a set of supporting tools - and need to be involved in the selection of these, as well as the definition of the governance business process. Tools include a business glossary, a data dictionary, metadata repository and data quality scorecards. A core prerequisite for a shared understanding of the data is the development of a common business glossary. Best practice is to introduce a tool to capture and define business terms used in different business departments and to make them accessible to all business peers. It is important that business terms in the glossary are related to the business context (reports, dashboards), information assets (like source systems) and people (owners). Wiki-based engines and data governance portals such as Semanta can make it convenient for users and data managers to contribute and share the business glossary. The glossary will also contribute significantly to the development of shared common dimensional views by bridging the gap between business uses of analytical data versus the source data systems. It will also help expose key source system data fields and transformations, which will be captured in the data dictionary and relationships explained by way of a simple high level enterprise data model (i.e. incomplete in detail, but demonstrating the fundamental entities and relationships). So the use of regular short workshops between source system owners and business analysts / decision makers in subject-oriented topics of conversation will help drive this shared understanding and document the findings. The business glossary must also evolve with a growing data warehouse that meets different business needs over time. So instead of a strict change management process, Texuna proposes a more agile change management process. With each iteration of the EDW, business users should be reengaged with change management techniques which are part relationship building, part training, part support, and part ownership/responsibility transfer.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We recognise the need to formalise ownership around different data items or datasets. What is your recommendation for implementing such a change successfully?	Building on the answers in Lot 1 Data Warehouse Question 3 and EDW Question 1 above, Texuna recommends that the data governance framework includes a data dictionary tool as the definitive record to manage data ownership and change. On one hand the data dictionary interacts directly with the software modules of the data warehouse so it represents a structured catalogue of metadata (data about information items and assets) which is always actual and up to date. On the other hand it also contains a mapping of relationships to the business glossary and business people (data owners). Again, subject oriented workshop discussions will help formalise the ownership decisions in an open table participative process.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Jisc reporting needs to address several different audiences with differing requirements. What are your recommendations to create a single data model to meet these requirements and implement this?	Texuna recommends the creation of a common dimensional model that is easily understood by the business owners and business drivers that require analytics and reports directed at business problems. This is fundamentally the Kimball approach to data modeling to meet different subject-oriented business requirements of different audiences and stakeholders. It is based on bus architecture that links and shares different EDW dependent data marts through these common conformed dimensions. The single data model can be realised through the initial creation of a dimension matrix that can subsequently be translated to a more formal data schema over a series of subject oriented workshops between different business users, business owners and source system owners. Conformed dimensions must be reached by consensus. Kimballs instructive guidance is as relevant today as it was when first put forward in the 1990 – please see for more detail: http://www.kimballgroup.com/1999/12/the-matrix/ Texuna will use an independent expert facilitator and data modeling academic to help coordinate key stakeholder workshops to make sure that all audiences are engaged and challenged on this task, and that they own and share the outputs because of their participation and input into the creation of this data model. This academic viewpoint will give a natural counterbalance to and quality control over the practical orientation of an agile EDW implementation team. This will also keep an ongoing focus on the long term goal of delivering a reasonable enterprise data model without sabotaging the initial agile drive to deliver fully functional data marts with common conformed dimensions.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How would qualitative data such as case studies and progress reports fit into a corporate data model?	Texuna has large experience with processing of qualitative data like progress and quality reports and other unstructured data. A good example is the NCTL Performance Profiles reports for universities. The HEFCE NSS project is another example where Texuna process national newly qualified teacher's survey and generates reports for each university. Texuna also process qualitative Inspection data reports from OFSTED for NCTL. The key is to understand how this information needs to be used so that the appropriate strategy can be put in place to capture/extract the data and load it into the EDW project, and subsequently process and transform it into more usable data, possibly multiple times and from different viewpoints. Texuna's AWS based architecture proposal is ready to store and process very large number of files and formats from lots of sources, including storage in MongoDB on EC2 or file storage on S3 depending on requirements. AWS Elastic Map Reduce provides ability to parallel process large volumes of data if required. Different file formats Excel, Word, PDF etc. can be processed using the Pentaho Data Integration ETL tool as well as reusing Texuna libraries as PDI plug-ins for sources like OFSTED or NSS. Once processed or mined, unstructured data can be transformed into useful structures that can be stored on the Redshift database for high performance querying and reporting. Actual links to the underlying source files can be preserved and used for context sensitive reporting and dashboards, and as a distribution hub for viewing or downloading by business users and customers.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	The warehouse will receive data from a range of systems, including external sources. We anticipate the need for a data integration layer to hold and process data before enters the warehouse. What would you propose for this layer and an approach to master data across Jisc?	Texuna's proposed multi-level Enterprise Data Warehouse structure is shown in the diagram below (Figure 1). Within these layers is an architecture for the journey the data takes as it is collected, centralised, and transformed into integrated, subject oriented, time variant data. These layers are described as: The Integration Layer - holds and processes data before loading to data marts. Initially ETL server extracts data from source systems and puts it 1:1 to 'mirror' area. A mirror area acts as an audit trail and holds an exact mirror of the external source systems databases and files. The ETL server is responsible for loading the received updates into this production source systems mirror databases. Mirror is a centralised but as yet un-integrated store of actual transactional source systems data as different stove pipes. The ETL server then profiles, cleanses, duplicates, traces and transforms the data to an integrated data store. The Operational Data Store temporarily contains low-level transactional data until it's transferred to the EDW and data marts. The Master Data Store contains master data from various sources after it is mapped and transformed by ETL server, and is used as the basis for managing slowly changing common dimensions. The Presentation Layer - is organised as data marts with a shared and common dimensional structure. Although data marts are divided in correspondence to different reporting areas, they are linked with each other via conformed dimensions (Kimball's so-called Data Warehouse Bus). A logical model of each of the data marts links each of the various fact tables with the unified master data tables via surrogate IDs. In these cases virtual data cubes such as the SAP BO Universe will be mapped to the relevant underlying data mart fact table and dimensions in the EDW Presentation layer. The Presentation layer may also hold OLAP cubes with pre-prepared/pre-aggregated multidimensional data for high performance querying and reporting where this strategy is superior to caching common query results. The data here may be optimised and queried directly by MDX for example. These OLAP cubes may also live outside of the RedShift EDW if required by certain OLAP servers. The real benefit of Texuna's recommended Redshift and Pentaho DI approach is that it is very flexible and allows such EDW Layers to be added or removed depending on the exact nature of ever evolving requirements. For example this traditional approach can be expanded logically speaking so that a new layer is added to centrally collect only unstructured data into a single MongoDB within the overall EDW architecture so that it can be further analysed and transformed within that logical layer without interfering with the other Levels of the EDW. Master data management can be achieved in several ways, from dedicated but expensive tools to simpler centralisation of these functions within a streamlined ETL data processing tool with specific master files data sources. An initial set of master files data can be sourced and loaded during the initial setup of the EDW with scheduled updates subsequently. Defining the data dictionary will allow central mapping tables to be created within the ETL that matches data from external systems to the EDW. The ETL tool can be used to maintain the Master Files and Mappings information within the EDW Master Data Store, and these can be made available from the EDW to other metadata reporting tools etc. The ETL operations are also automated to accommodate any changes in external systems, and can act as a quality control if unexpected modifications are encountered. Pentaho DI provides out of the box support for the concept of Slowly Changing Dimensions which is very well suited to trace master data changes and supporting changing business dimension hierarchies.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Describe the best practice method we would need to carry out in order to undertake an inventory our data?	The EDW will include a metadata repository that acts as an inventory of all the data structures in the data warehouse. The ETL tools Master Data Management features will facilitate the automatic synchronization of the meta data across various metadata source systems, build relationships with different metadata types (entity-relationship or object-oriented), link view to master data, and enable version control. When the metadata repository is integrated with the data dictionary it facilitates business definition management: ownership, descriptions and characteristics, rules and procedures. This metadata repository will become the basic tool for change management as it helps to understand current and historic state of the enterprise data model, will reveal inconsistencies, missing data and any redundancy.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How can you ensure compliance with regulatory, corporate policy and especially Data Protection requirements in the proposed model?	Texuna is certified to the ISO/IEC 27001:2013 standard across all our operations. We are audited by external auditors BSI who verify our compliance to the standard and we have successfully passed our audits since 2009 when we first gained the certification. Our Corporate policy is to comply will all regulatory requirements and the requirements of ISO 27001, ISO 9001 and ISO 20000 in everything that we do. We are registered data controllers with the Information Commissioner and have an established set of development procedures and standards that are met in all our client work. We monitor changes to legislative requirements through the Information Commissioner, our contact with BSI and through our membership of TechUK, thereby ensuring that we remain compliant with requirements. We are willing and open to any inspection audit that Jisc may choose to perform on our operations. We guard the personal data of our clients with care and ensure that all personal data is encrypted in the data warehouse and is only available for view to those authenticated users who are authorised to view, edit or extract it. Personal data elements will be defined as any data elements that could identify a living individual and will be confirmed with Jisc in the design stage.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How is your organisation dealing with information security issues in your supply chain?	Texuna is a technical solutions systems supplier with a commitment to the open source community. Where practical we provide all contracted services in house and only use external contract suppliers for specialist services. Where we do use external suppliers, for example for hosting services, we ensure that their policies and procedures are compatible with our own and that the information security of our client's data is protected. Where we do use open source tools to build our solutions we select them with care. We use only widely recognised and well known products and components that are already employed in robust applications. We monitor the open source community so that we are aware of any potential issues that may be present in any of the tools that we use so that we can take appropriate action. We take care not to adopt any tools that are not widely recognised as of high quality or well used.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What approach for resilience would be offered, and what service availability and response times can be realistically achieved?	A fault-tolerant design is used. Failover is automatic and there is no service interruption. The approach used is active redundancy and load balancing. Each component has multiple items of the same kind which are used for redundancy and load balancing. The system is tolerant to any single failures. In case of multiple component failures of the same type, an automatic deployment can be manually triggered to configure this component on a new node (different region, for example) in hours. 99.9% availability is expected.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What are you doing to ensure that your information security management systems are providing real value to your customers and not simply compliance with a standard?	Texuna is a small company and so our reputation is of critical importance for our continued growth and to assure our clients. Our ethos is to deliver excellence in everything that we do and to this end we ensure that the effort expended on our standards delivers real value to clients. We use our incident tracking and reporting data to produce detailed management reporting that identifies root cause. This has highlighted areas of improvement and we have been able to improve our internal systems and documentation so that the number of incidents has substantially reduced over time. A constant threat to information security is malware and by enforcing standardisation of implementations and rolling out all fixes to all solutions we constantly update and improve information security for our clients. This approach has Director level attention and support. Furthermore Texuna are accustomed to carrying out regular Penetration Testing internally as well as independently on our solutions, and are very careful to ensure all possibilities of weakness are regularly considered by technical staff, and known risks accepted by management.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What do you consider to be the biggest information security risks to Jisc's data in the proposed solution?	Texuna is an experienced contractor and we have a track record of transforming legacy systems to data warehouse solutions. The risk to Jisc data in this transformation is low. Robust and secure management processes will be applied. Jisc staff will be responsible for the verification of all data mapping verification and signoff so that the data integrity is maintained and quality enhanced. The biggest risk is to scheduling. There is a large volume of data and the verification step will take time, depending on available skilled resources. A phased approach will be proposed to target high priority data first to establish the EDW. Data can be enhanced and extended as the project progresses.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What plans have you made you deal with data breaches?	Any hostile breaches will automatically be unable to view any data within the Texuna solution. In particular Amazon Redshift encrypts and keeps all data secure both in transit and at rest using industry-standard encryption techniques. Redshift supports SSL-enabled connections between client application and the Redshift data warehouse cluster thereby giving transit encryption. There is also the option to use the AWS VPN to connect all components of the warehouse architecture behind a closed network (including the ETL tool, any MongoDB for unstructured data, as well as analytical components that access the EDW as dependent Data Marts). Security at rest is assured since Redshift encrypts each data block using hardware-accelerated AES-256 as it is written to disk. This takes place at a low level in the I/O subsystem, which encrypts everything written to disk, including intermediate query results. The blocks are backed up as is, which means that backups are encrypted as well. So by default data will already be very secure and unavailable should a hostile breach occur. The network system will be locked down so that all public access is only through a single permitted gateway to the AWS infrastructure. All internal modules, databases and application servers will have very restricted access behind firewalls and VPN. No direct connections to these components will be allowed unless it is through authorised equipment. Extensive monitoring and logging is also used, which provides sufficient evidence to identify threats and investigate preventative action. For example, this allows Texuna to identify any spurious malware attacks, and where identified the originating IP will be excluded by firewall configuration. Texuna has an internal tracking system in place and can provide example statistics of incidents and resolutions if of interest to Jisc. Internal risk is managed through an information security policy undertaking signed by all staff. Staff are contractually bound to guard client data and any non-compliance may result in disciplinary action. Only those staff with a need to know are granted access as named accounts only, so there is an audit trail for traceability. Furthermore Two Factor Authentication can be put in place to assure utmost security and limited opportunity for breach by either Texuna or other staff and/or contractors working with Jisc. To date, after 15 years of work, Texuna has had no occurrences of internal data breaches.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How should Jisc best manage access to reports for external organisations e.g. Universities, Funding Bodies?	Texuna's solutions typically have very granular levels of security permissions that can be managed by security groups or at individual levels. These are applied to different analysis portals and can also be restricted by the content of different datasets. So, for example, Texuna can support benchmarking within a dataset whereby a user can only see detailed level data for their own institution but is restricted to aggregate level data across regions or the sector. Typically this security must be implemented at the OLAP reporting level so requirements across multiple data marts must be well understood and common rules and permissions applied across all data marts. Texuna developed the Secure Access solution for DfE which provides central management to the access of educational portals and services for tens of thousands of universities, schools, colleges and authorities across England. This incorporated a rules based engine, with an administrator interface, to define access groups based on user attributes. Appropriate access to all integrated applications can be ensured without a large administrative burden, even when dealing with 100s of roles and access groups. The same approach could be taken for Jisc to ensure correct access, whilst minimising burdens. Tableau allows the embedding of widgets, such as predefined charts and reports, into external portals by using iFrames. This approach is fine for public reports but not appropriate for non-public data. It increases the footprint where reports can be shown and increases the awareness of users concerning Jisc. For confidential data however, Tableau, Pentaho BI and SAP BO all need to have configured user accounts and access groups established. For example, universities' users could log in to Tableau or SAP BO to see reports presenting confidential data only if they have already been set up and permissioned. Where open standards for authentication are supported Texuna could centralise this access and permission management in a single place and apply it across data marts and analytical services. Texuna has plenty experience of managing user identities and access permissions, including with Single Sign-On support. If Jisc has SSO provider or plans to implement this approach Texuna can easily meet these requirements.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How would user access be tracked and reported?	Texuna takes information security very seriously, and ensures information security is aligned to our corporate strategy and remains a top priority. Texuna is registered under the Data Protection Act 1998 as a data controller and is certified under the ISO27001 standard by British Standards Institute (BSI) across all office locations. This standard details controls for all areas of our business including data security and system integrity. A key aspect of this is access control and user/system audit trails. The solution proposed consist of software packages and services with comprehensive security permissions system and audits. Amazon Redshift logs information about connections and user activities in database. These logs help to monitor the database for security and troubleshooting purposes, which is a process often referred to as database auditing. The logs are stored in the Amazon Simple Storage Service (Amazon S3) buckets for convenient access with data security features for users who are responsible for monitoring activities in the database. ETL tool - Pentaho Data Integration - keeps track of all changes to process including time and user. All tasks performed on data are logged for audit in future.	

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	Sector	Solution	Question	Template Response	Picture number
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How to carry out the transition from the current reporting system to the new reporting framework – what are the steps in the change process?	The transition plan should recognise that the new reporting framework will not (in most cases) replace all of the current reports at once. In such cases the project should aim to replace the current reporting methods according to a schedule agreed with the business in advance. The existing system and tools should be retired gradually and the BI project may need to provide a short transition period during which users have access to the old tools. Where feasible some old reporting tools may also be redirected to source data from the EDW - this is the strategy envisaged to support the existing 100+ SAP BO reports in the short to medium term	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How would you achieve transfer of knowledge to allow Jisc staff to actively participate during the live project and take over the day-to-day running of the EDW and/or reporting frameworks after the project is completed?	The key success factor for knowledge transfer is Jisc staff involvement at every stage of the project: - During requirements definition they participate in interviews and prioritisation workshops - During the design stage they contribute to modeling workshops - During the development and deployment stages they provide feedback to the prototype demo sessions - On transition to Go-live they participate in tests and training It is important to identify key users early and include them in the project team. They will act as the data stewards, subject matter experts, and must be willing to drive the transition to the new reporting framework. Through ongoing project communication they will master the new reporting framework and will be able to take it over after the project is completed.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Our intention is to take over data management, once the project is complete: What is the best skill profile, team size and which roles need to be established to carry through this plan? Is it best to have a central data team or disperse skills around the business? Should the data team also be the reporting team?	The data management team (data governance board) must be balanced to include technical specialists, data analysts, business users and managers. - Technical specialists are to provide IT systems administration and support; - Data analysts are to manage the data warehouse including data structures and data flows; - Business users are to deal with reporting requirements; Managers give the mandate for change management, ensuring compliance with corporate strategies and policies, and to allocate resources as required. The team size should ensure that each component of the EDW and reporting framework is covered by at least one board member and one substitute. The data governance team will evolve from less to more centralised with the maturity of EDW and reporting framework. Based on our experience the most usual case is federated data board structure when business users control day-to-day reporting in their functional areas with limited centralisation of support and change initiatives in dedicated data management team.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Our intention is to take over day-to-day management of the data. In case this is not possible what arrangements could you offer for staffing our data management requirement?	Texuna is able to provide a fully managed service where our technical team is responsible for the data management, maintenance and monitoring of the system, including ongoing modifications to the data structure, source feeds and report/analysis data marts. This is a service that we provide for a number of our existing clients. We would be pleased to provide further details and a cost proposal for our services should Jisc wish to take up this option.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We understand that software changes over time. What exit strategy could be offered if in future Jisc needed to move away from any of the software solutions (packages or services) in the EDW and Reporting?	We suggest modular approach to delivery of EDW. The service elements are hospitable to a modular approach because all software packages or services are independent of each other and easily interchangeable. The EDW is built on AWS Redshift, ETL tool is Pentaho DI, Information management system is Semanta and the BI tool is Tableau. These tools integrate with AWS Redshift through standard protocols. Each tool may be upgraded to newer version or completely replaced with another, more current alternative. Our design allows step by step Agile migration and evolution without service interruption. Software packages and services we suggest provide export functionality allowing to download data for upload or import on other environments or services. AWS Redshift provides ODBC drivers which support by majority of solutions and services. Pentaho Data Integration provides "Export repository to XML" function. It downloads all transformations and job schedules with complete configs. This file may be used for migration of environments, import of data to other services (if they support such format) or as up-to-date and 100% correct specification of transformations which may be used to reproduce them on other software packages or services.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What level of staff resources would you expect to be required from Jisc to support and operate the on-going service?	During business as usual it may not be necessary to have any Full Time Equivalents working to support the EDW as this work may be effectively outsourced as part of the support and maintenance contract. Should all support and maintenance be kept in-house, Jisc should plan on between 1.5 and 3 FTE staff to manage the entire ETL, EDW and OLAP components, which includes hardware/software monitoring, processing and load management and any ad hoc changes to the underlying data models, source systems and business analysis requirements.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What model would you propose for on-going monitoring, support and maintenance including health and security monitoring after the initial set up period?	Amazon AWS offers various monitoring metrics through Amazon CloudWatch service. All metrics can have thresholds and linked actions including automated actions to fix common problems and alert about problems requiring attention. Amazon CloudWatch dashboard shows graphs and statistics for any of these metrics, and a quick overview of all alarms and monitored AWS resources in one location. Amazon CloudWatch can also store and analyse logs and trigger security related actions.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	So we can begin to understand on-going costs, we need to understand which software packages and licencing would be in the solution and estimated on-going costs and licences (beyond the tools we have already).	Texuna's proposed cloud-based solution has an explicit pricing model both for software and hardware. Cloud based hosting eliminates risks of ad-hoc purchases of hardware common for on premise hosting because of hardware failures or over specification. Maintenance and support costs by are reduced because system administrators do not need to install, replace parts and configure hardware.	Pic 21

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Appropriateness of current tool choices: do you have any recommendations for appropriate alternatives, with migration path and possible costs.	Tableau is the default recommendation as cloud based, and is already well integrated and established with AWS Redshift. Texuna will also migrate the SAP BO Universe so that it becomes a dependent and dimensionally confirmed data mart that sources its data from the Redshift EDW. This will greatly facilitate change management, reduce the training overhead and ensure immediate return on investment. This also allows existing licence investment to be reused. Together Tableau and SAP BO can cover all the main analytical queries that might need to be addressed: - Financial reporting (financial statements and managerial accounts) - SAP BO Web Intelligence - Statutory reporting - SAP BO Crystal Reports (if included) / Web Intelligence + Excel for formatting - Board level reporting and dashboards - Tableau/SAP BO Web Intelligence/SAP BO Xcelsius (if included) - Self-service analysis and data discovery - Tableau However the proposed architecture isn't limited to just these. Other Open Source Software options for Business Intelligence are also easily supported with Redshift, including both Pentaho BI and Talend, both of which are based on the Mondrian OLAP engine that supports open standards such as MDX, a multidimensional query language.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Best practice for off the shelf approach with minimal customisation to the finance data universe - how far can this be achieved?	The ETL tool will be used to feed the new EDW which will be inserted between the SAGE source system and the SAP BO Universe. The ETL can also be used to create and load data into the existing Universe schema as it is currently defined – which is outlined here. Customisation of the finance data Universe is minimised because the existing data structure and content of SAGE is replicated to an EDW Mirror data store. This retained raw data mirror within the EDW has a 1:1 match to the SAGE source data as there is no transition of calculations (metrics are only calculated by the ETL and only stored within the EDW data mart Presentation Layer as transformed and conformed data). So the existing SAP BO Universe, which is based on a virtual view of source data, should be easy to redirect to operate from the EDW Mirror data in the short term. This approach is not optimal however because when complex calculations stay in SAP BO it is hard to replicate, reuse and modify them for new reports across other conformed data marts. Furthermore SAP BO based calculations are triggered every single time a report is launched, so it affects each reports speed performance. It also assumes that dimensions do not need conforming within SAP BO which may not be a realistic assumption. Beyond the short term, the best practice approach means reverse engineering the SAP BO calculations and logic to become ETL transformation routines that enter the EDW as metrics and calculations within the Presentation Layer, becoming conformed and available to populate other data marts. This approach is more demanding to develop but is a very worthwhile exercise in the long run journey toward maturity.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Current financial reporting is based in 100+ Business Object reports, how can these be carried across to the new system?	If SAP BO Universe is maintained as is at least in the short term, then the new EDW source system Mirror data will feed this existing BO Universe. This will allow all the existing 100+ reports defined in BO to continue to be used without change. Medium to long term there are several ways to switch SAP BO report calculations and business logic to live within the ETL tool and EDW marts, depending on the peculiarities of each report's complexity. Complexity is a function of the number and difficulty of the metrics and calculations performed within each. Where the Universe has lots of common reused calculations they will be prioritised for migration to the ETL tool to perform the transformations and store the results in the EDW Presentation Layer data mart. From there these calculations can be available to other data marts which require the same pre-calculated measures and dimensions, including the simplified SAP BO reports themselves. In this case the Universe needs to be re-created and simplified. The redesign could also affect the report design depending on difficulty of calculation logic. However if the report has minimal calculations its source can be simply switched to EDW without breaking the report design. This work will be treated as a separate mini project within a dedicated agile time box.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How do we add graphical reporting and dashboards for finance reporting in the future?	SAP BO tool can be used to achieve this in the short term. SAP BO also supports visualisation (Xcelsius and Web intelligence). Alternatively Tableau could be deployed on top of the existing SAPBO Universe solely for the purpose of dashboard (although this is likely to be a short term fix until SAP BO metrics and calculations are moved into the EDW data marts). Tableau is an excellent choice for visualisation and dashboards. Out-of-the box solutions (e.g. Toreodata) also exist to connect Tableau to SAP BO Universes which make it a quick win for this purpose. Long term, Jisc has the option of reducing its reliance on SAP BO if required, and as we have outlined elsewhere the best practice is to migrate all important calculations and metrics to the EDW fact tables. Therefore it will be possible to provide simpler graphical reporting and dashboards directly from the EDW Presentation Layer without having to rely on SAP BO.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How will we enable re-use of current BO Universe reporting on top of a new data warehouse?	SAP BO already has ODBC connectors to the Amazon Redshift back-end which will make this process straightforward. The existing SAP BO Universe will run as a logically separate virtual Data Mart view sourcing its data from the EDW (initially from the Mirror SAGE replica data in the Integration Layer, but ultimately from the transformed Presentation Layer data mart). Therefore Texuna will re-use the existing SAP BO Universe by simply switching the Universe source view from SAGE to the EDW in the short term, with a programme of work to ensure the Universe is adjusted to map from the dependent and conformed data mart structure over time. This work will include ETL adjustments, data mart augmentation in the EDW and simplification and rationalisation of the SAP BO Universe reports and calculations to make long term maintenance easier and eliminate possible multiplicity in 'versions of the truth'.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How to ensure that security protocols in place on Sage are carried through to the new finance reporting system.	Sage 1000, SAP BO and Tableau support integration with Active Directory. Texuna can centralise and configure authentication credentials and permissions management for access to each of the system components of the EDW, with cross-system and system-specific user groups as required. The current SAGE and SAP BO governance needs to be audited as part of the project. Once the access control model is understood and clearly documented, gaps and weaknesses can be addressed. If sufficient on the SAPBO Universe and BO reports, then no action is required as the ETL and EDW links inserted between SAGE and SAPBO will be run without at a locked down system level with only very limited back office administration access and only through specified hardware within the trusted network.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We recognise some users will be power users, with corresponding extra tool licence cost. What is best practice to optimally allocate these roles against real business needs?	Licence costs depend on the tool and the usage scenario. Ideally concurrent user licences on server software are preferred so that they can be shared across a larger group of ad hoc users. Where not available, perpetual licences are preferable over annual licence costs, and all software tools must support open standards (SQL, MDX) and metadata exchange. Open Source Software now provides excellent tools with limited additional costs for commercial support. There may also be specialist mining and statistical analysis tools that are required for special purposes, although humble Excel still remains a favourite tool for seasoned professionals that have expert level skills. In this case the important thing is that they all understand how to and where to access conformed and transformed data marts in the EDW. Power users such as report designers are capable of modifying not only report layout but also the semantic layer (e.g. the BO Universe) and calculation logic (metrics formulae or scripts). Reporting specialists with business modeling skills will require this level of functionality. In the context of financial reporting framework these could be financial analysts, planners and management accountants. The most active users are also likely to be key candidate members for the data governance framework - and the most active members of this group should be given priority access to relevant licences where these already exist. Finally, a key consideration is making large data marts available to end users for self-service slice and dice from generic broadly defined starting cubes. This allows users to explore and refine their own reports without having to use expensive designer tools and reports. In this case, only a limited number of licences would be required for highly technical and competent designers for Crystal Reports, Business Objects, Tableau and Pentaho Data Integration.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	We see that Self-service reporting is becoming widely available. How can self-service reporting best be achieved, including ability to select and configure reports, without users requiring deep understanding of the Warehouse?	Self-service reporting is largely dependent on BI application capability. For example Tableau is marketed as a 'self-service' tool and doesn't require a user to understand the metadata of the underlying data warehouse. The business user models the data at the same time he/she models a report or analysis view. On the other hand Tableau semantic layer is closed for manipulation so the data source (data mart table) needs to be 'user friendly' with dimension and fact names aligned with business glossary. This is the essence of the Kimball approach. This will be done as part of the overall architecture and implementation of Texua's EDW approach to make the components and metadata easy to access and understand. BI tools can also have generic, broadly defined data marts with high level unconstrained reports as starting points for users to slice and dice their own way through data and save result sets. This greatly reduces the number of predefined reports that a technical designer needs to produce - but will rely on all key metrics being defined and available within the EDW and data marts rather than within the analytical and BI tools. But these might appear overwhelming for new users - in this case smaller subsets of a data mart view can be created as 'starter cubes' that are easier for newbies to navigate and teach themselves about the data and the reporting tools as they go. Excel is also a very attractive self-service tool, and if it is heavily used for analysis and modelling within Jisc then there is no reason to discourage its continued use as long as analysts understand how and where to access the EDW or data marts. In this case metadata navigation will be more important to provision for successful and confident self-service. For formalised and pixel perfect reports, SAP BO includes integration with Crystal Reports, and old corporate favourite static report designer tool. This is particularly useful for formal statutory report printing. However XBRL is also supported and can be used to export data to a number of different tools and 3rd parties where supported.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Information management: how will people find what is available in the first instance? Do we need a portal for example? We've seen that there are tools emerging in the market (e.g. Semanta) for navigating data about data, to allow people to identify available reports, definition, owner etc. Would you recommend such tools to allow us maximise benefits from the data? This would need to cover internal and external-to-Jisc data.	Texuna's current assumption is that there is at least a SAP BO portal for finance users, a Tableau portal for all other internal users, and a Jisc Digital Services portal for customers. There is no limitation on the creation of additional portals and/or datasets/cubes that can access the EDW and data marts. Some cube datasets can be subsets of larger datasets, making it easier for smaller well defined analysis to be done by non-power users who are less familiar with the data and structure to train themselves on these 'starter cubes'. The EDW project must be usable without a sophisticated metadata navigator - if not then it is simply too complex for everyday business use. A dedicated metadata solution should be considered to be a nice-to-have bolt on addition to the EDW as the information management capabilities of the organisation matures. But it may not be practical to design a Rolls-Royce from the start - the focus must always be on adding incremental business value to maintain a healthy and continuously funded EDW project. Texuna can easily deliver a basic online web service for Master Data Management with the business glossary, data dictionary, and dimensional data model with the connectors necessary to expose it to the end users as well as each of the EDW components. At this early stage Texuna believe that the cost and benefit of a tool like Semanta need to be carefully weighed against the maturity of the Business Intelligence exploitation desired by the organisation.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What opportunities can you offer to streamline production of statutory accounts?	Texuna recommends exploring SAP BO capabilities and its inbuilt tools like Crystal Reports and XBRL to streamline production of statutory reports. One of the criticisms raised by Jisc is the inability to store annotations - but a workaround for SAP BO makes it possible to input commentary in report layouts. Although not standard functionality, the workarounds are described in detail on the SAP Community Network forums. The only limitation is that these annotations are stored within BO and not returned to the EDW without considerable additional effort. SAP BO's publications engine also allows reports to be scheduled and distributed to authorised recipients in various formats. XBRL reporting to HMRC and Companies House can also be streamlined via a 3rd party application developed specifically for SAP BO.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	When reporting to customers and stakeholders it might be necessary to anonymise organisations or hide data based on specific criteria (e.g. hide/exclude data below threshold or anonymise competitors when doing comparisons). How would this be achieved in your proposed solution?	Privacy protection is a signature of Texuna's solutions for the NCTL and NSS projects. Anonymisation (hiding/excluding) is achieved through masking and filtering of analysis result sets typically within the OLAP tools. In simple scenarios we can persistently anonymize data in data mart using ETL or filter it out through report redesign. In more complex scenarios when data must be anonymised dynamically (e.g. certain data slice in OLAP) this would require additional step of special processing with data masking procedure. Texuna have deep experience in achieving this with BI tools such as the Pentaho Mondrian OLAP engine.	

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JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	How to ensure skillsets, qualification and training, business continuity of supplier team involved in the work.	Business continuity management is an important part of our regular project management and quality assurance planning. Texuna are certified to ISO standards for service management and information security and business continuity underlies our process approach to projects. We put the following measures in place standard in our projects. - Project activity is documented. This includes management documentation, technical development specifications and system management processes. - Documentation is shared with the Customer team for feedback and sign-off and forms the basis of training for staff rotation both at the Customer and within the Supplier. - Key staff have contingency staff allocated so that there is no confusion if any staff become unavailable. - Training and skills development is a focus within Texuna and we ensure that knowledge gained in the training and skilling of staff includes dissemination to others in the Company. Furthermore a BCDR plan ensures a framework for continuity is in place. Our recommended solution is based on the existing skills and investment of the Customer as well as the use of well-known technologies. Texuna already has the knowledge and experience to implement the technologies that are proposed to Jisc for the Enterprise Data Warehouse project.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	Project Delivery: what is your experience of the application of an Agile methodology and how would you practically implement it for this project?	Deliver the EDW in small but meaningful chunks, and prototype all reports in real-time with the Jisc Project team and data stewards based on pre-existing cubes or BO Universe. The key is to start the build phase with a basic EDM (enterprise data model) with low level of detail, and install basic data governance to ensure that the Master Data Management philosophy is understood and followed. To expedite delivery, we will implement in parallel and separate work streams. This will mean that the EDM/MDM work must continue for the life of the EDW project on a low resource basis so it does not jeopardise the ability to quickly define and modify the EDW and/or BO Universe/Tableau cubes in real-time so that new questions can be quickly answered. As with the Agile MVP, there is a need to consider the use of Minimal Viable Quality when it comes to the EDW. Some subsets of data need to be good enough, but may not need to be perfectly clean to get the desired results. This is particularly relevant for ad hoc or unstructured data. Whereas other data (and this would include financial data) will have a much higher bar in terms of minimum acceptable quality for initial delivery.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	To help us to understand your expertise, can you explain why you chose your three specific reference sites chosen for the PQQ?	Texuna's expertise is a technical and engineering expertise in the management of data within the UK education sector. The EduBase project is an example of Master Data Management and Operational Data Store for schools. NCTL Profiles is an example of an historic long term data warehouse that has changed and kept up-to-date with the last 12 years of government and policy changes. The SIR project also demonstrates a long term data-warehouse project that has changed over time. Both the NCTL and SIR projects maintain master data across dozens of input data sources, for example HESA data. All three of the reference projects are large EDW implementations that provide extensive reporting and analysis capabilities for Government.	
JISC	Education	Enterprise Data Warehouse & Business Intelligence Solution	What level of Jisc staff involvement is required during the project?	Ultimately the project is a Jisc project and while Texuna will ensure it is implemented on schedule and within budget, the secret to the success of the project is the ability to continue to deliver intelligent answers to specific business questions over the long term. This is a key competency of the Jisc team and their guidance is essential to ensure the project is focused on the right priorities. Jisc staff will be involved in all aspects of the delivery planning so that they are trained and equipped to take the project forward. The project delivery is dependent upon Jisc experts being available and responsive to data questions. It is likely that this will require short bursts of activity (e.g. confirming data questions or testing and accepting new reports). Some key operational and technical people may be requested to spend significant amounts of time on the project at least for the first number of iterations. Within the first 12 months and the four planned 90 day iterations of the project, we estimate that the Jisc staff involvement will be at least three Full Time Equivalents in terms of staff resources.	
Leicester	Education	2FA	What type of solution(s) do you provide and support?	Texuna is proposing the use of our Texuna One solution. Texuna One supports hard, soft tokens, SMS, email and the use of web browser Our Texuna One solution provides multi-factor authentication for administrative users, using an industry standard method. Multi-factor authentication (MFA) is achieved via the Time-based One-Time Password (TOTP) algorithm described by M'Raihi et al. Google Authenticator is used as the preferred implementation of software token. On signup, a secret key is shared between the server and the client, either via scanning a QR code or manual entry. The secret key and the current timestamp are used to generate a passcode of six to eight digits which is valid for thirty seconds. On login, administrative users must present their login credentials and this passcode to be successfully authenticated. Official Google Authenticator apps are available for smartphones running the following operating systems: · Android 2.2 or later; · iOS 5.0 or later; · and Blackberry OS 4.5-7.0. This covers the vast majority of smartphones that are available today and in recent years. Furthermore, as the TOTP algorithm is open source, third-party implementations are available for most other operating systems – including full-fledged operating systems (i.e. Windows, Mac, Linux).	
Leicester	Education	2FA	Your solution must support ALL of the following mobile clients: Windows iOS Android Blackberry Please confirm acceptance of the requirement and describe how your solution(s) meet this requirement.	Texuna One uses a standard algorithm for the generation of one-time passwords, with Google Authenticator as the recommended mobile app. Authenticator supports smart phones running the following operating systems: · Android 2.2 or later; · iOS 5.0 or later; · Windows phone; · Blackberry OS 4.5-7.0. This covers the vast majority of smart phones that are available today and in recent years. Furthermore, as the TOTP algorithm is open source, third-party implementations are available for most other operating systems – including full-fledged operating systems (i.e. Windows, Mac, Linux).	

					Picture number
Intro	Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.				
	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Leicester	Education	2FA	What standards do you meet for security generally? E.g. ISO	Texuna is registered as Data Controller with the Information Commissioner's Office. Registration is held covering software development, testing and demonstration, with subjects and classes of data necessary for these purposes. Texuna is also certified under ISO 27001 for Information Security by the British Standards Institute (BSI). It should be noted that the scope of the certification includes all staff in each of our office locations, which are all externally audited by BSI, and also the internal and client solutions. As a result stringent processes are in place with strict policies enforced to ensure data security is treated with paramount importance. These include privacy policies which detail Texuna's compliance with the DPA. Texuna and all staff who process or use personal or sensitive information must ensure that they follow these principles at all times, and comply with the Texuna data protection policy as formally endorsed by the company. Continual internal and external audits ensure compliance on an ongoing based: Policy - Purpose and use Information Security Policy - Overarching policy setting objectives for information security management. Secure Development Policy - Details processes and procedures for secure development practices. Security Agreement - Contractual document signed by staff, subsequent to background checks, covering security policies & working practices (e.g. communications, etc) Access Control Policy - Part of the ISMS, policy on access to data and systems. Working policies-Security - Day-to-day guidance on security while working at Texuna. Continual Improvement Policy - Texuna is committed to continual improvement of our management systems to further our business as described in this policy. Change Management Policy - Details how safe client project/service or internal project change is safely managed and delivered. Solution Release Policy - Details processes and procedures for secure change and release practices. Service Management Policy - Overarching policy that sets our objectives for Service Management Quality Management Policy - Overarching policy that sets our objectives for Quality Management Quality Manual - This document is required by the Quality standard and sets out how our quality management system works Any breach of the Information security policies and processes, whether deliberate or through negligence, may lead to disciplinary action being taken, or even a criminal prosecution. It is not common for personal or sensitive information to be hosted, accessed or transferred outside the EEA on behalf of customers. In previous projects, where access/transfer was required outside of the EEA, all personal or sensitive data was obfuscated. EU model contracts have been explored and can be put in place. Please note, the scope of Texuna's BSI certification to ISO 27001 includes all office locations. This covers all processes and procedures for the safe transfer, storage and handling of data. For instance, obfuscation, secure transfer methods, registering and storing data, data deletion and destruction. Texuna would also like to declare that personal and sensitive data held within a solution can be subject to encryption directly in the database. Java-side ciphering is used to encrypt/decrypt sensitive and confidential data so only users assigned with correct access permissions can see the encrypted data in the unencrypted form. The encryption keys used for ciphering are stored separately from the application database in order to mitigate the risk of unauthorised access. Further functionality within solutions themselves ensures compliance to Data Protection legislation. For instance, accounts that have been inactive for a period of 7 years have all personal details deleted.	
Leicester	Education	2FA	Should LCC proceed with a new solution, there will be a requirement for training and subsequent support to the Local Authority's team. How as an organisation would you accommodate this in terms of cost implications and the implementation process?	Texuna regularly conducts training sessions for clients and it is understood that Leicester City Council will require these. Our costs proposal currently includes availability of a member of Texuna staff to carry out three training days (three sessions in total) that Leicester City Council can utilise for internal or external staff. Training sessions can usually be conducted for 10-12 attendees at a maximum for one trainer. It is assumed that training locations (with infrastructure) and trainee attendance will be managed and paid for by Leicester City Council. Texuna will provide a user guide for the solution, and specific training manual/exercises that supplement the user guide for training purposes. This will be maintained for the duration of the project. This system administrator support material will be available on a secure online wiki. This ensures transparency, full versioning / audit and availability of support. Standard documentation and guidance includes: - Environment details - Release deployment scripts and procedures - Stack Installation scripts and procedures - Stack Upgrade scripts and procedures - Upgrade scripts and procedures - Troubleshooting instructions and advice - Details of scheduled tasks - Details of regular and ad-hoc maintenance - Details of patches and extracts that can be run - Details of monitoring in place - Details of backup procedures - Details of disaster recovery - Details of certificates updating - FAQs that are often asked Further training and support can also be provisioned as needed	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Leicester	Education	2FA	Control of Technical Vulnerabilities Describe process for the on-going testing of your software for security vulnerabilities detailing the methodology used, the frequency, whether this is carried out by an internal team or an independent security testing specialist. Please also detail: How the results of testing are shared Whether all vulnerabilities are disclosed Whether the testing specialists are approved by any security organisations. What the typical timescale from a vulnerability being identified to a patch being applied

Please confirm that you accept that the Council will also carry out both manual and automated "black box" tests of the system before and after going live. | Texuna solutions have undergone thorough external penetration testing on numerous occasions.   Each time the solution has passed, and any further recommended improvements are addressed before promotion into a production environment, supporting an ethos of continual improvement. Each penetration test is specific to the solution in question, as both infrastructure and application penetration testing are involved. The standard areas tested are:

Infrastructure Testing Methodology/Activities: - Application Testing Methodology/Activities: Reconnaissance - Application Reconnaissance Network Mapping - Authentication Enumeration - Authorisation Vulnerability Identification & Exploitation - Functional Analysis Denial of Service - Backend Databases
Management Interfaces
Texuna will be happy for any LCC solution to be placed through penetration testing. Texuna have previously found the Info Assure Ltd. services very effective, but are prepared to work with any supplier. It should be highlighted that the Texuna identity management solution for the Department for Education has been approved to store data classed as Business Impact Level 3 (BIL3) for confidentiality, as per HMG Information Assurance. Texuna has also successfully passed external RMADS (Risk Management and Documents Accreditation Set) processes as part of our projects, including for identity management and systems integration projects. This is in addition to the policies, processes, procedures, controls, monitoring and review of information security at the heart of Texuna's ISO 27001, ISO 9001 and ISO 20000, certified annually by the British Standard Institute (BSI).
Texuna's Information Security Management System (ISMS), which conforms to the requirements of the standard ISO 27001 as certified by the British Standards Institution, encompasses delivered solutions and would include the BBCiD project. It should also be noted that Texuna conforms to the requirements of the standard ISO 9001 for Quality Management and ISO 20000 for Service Management, again certified by BSI. This again applies to all solutions, staff, operations and offices.
The following tools are utilised by Texuna's QA team to ensure software and security quality is utmost.
Tool - Description
Skipfish - Skipfish is an active web application security reconnaissance tool. It carries out a recursive crawl and dictionary-based probes.
JMeter - Apache JMeter is an Apache project that can be used as a load testing tool for analysing and measuring the performance of a variety of services
Canoo WebTest - Canoo WebTest is a free Open Source tool for automated testing of web applications in a very effective way.
SonarQube - SonarQube (formerly Sonar) is an open source platform for Continuous Inspection of code quality.
Apache Ant - Ant supplies a number of built-in tasks allowing to compile, assemble, test and run Java applications.
Apache Maven - Apache Maven is a software project management and comprehension tool.
Jenkins CI - Jenkins CI is the leading open-source continuous integration server.
Artifactory - Artifactory is an open source repository manager.
Git - Git is a distributed revision control and source code management (SCM) system
JUnit - JUnit is a unit testing framework for the Java programming language.
Mockito - Mockito library enables mocks creation, verification and stubbing in unit tests. | |

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	Sector	Solution	Question	Template Response	Picture number
Leicester	Education	2FA	Please describe: How upgrades, bug fixes and incremental patches are applied to the system and whether these are included in the licence What change control processes are in place and how the system will be rolled back if necessary What documentation and/or training materials will be available to us for supporting the system How feature requests are handled	After Leicester City Council formally sign off the requirements and specifications as correct, Texuna's business analysis team will submit specifications to our online task tracking system as development tasks. These tasks are prioritised and, during the planning phase, distributed between a series of development iterations. Each such package will result in a functional solution release that will be reviewed by Leicester City Council for testing and feedback. The plan of iterations will be submitted to Leicester City Council for review and approval – this way we ensure that business critical functionality is implemented in the early stages, when there is more time to assess it and initiate changes. Once requirements have been signed off as correct, Texuna will prepare UAT test scripts for formal UAT and Production package testing. Texuna's iterative Test Driven Development (TDD) methodology will not only ensure that testing begins at the earliest opportunity, but that requirements are rewritten as tests. These tests will be prepared for Leicester City Council on the project wiki, where formal sign-off as correct by Leicester City Council is recorded. This step in the process not only prepares formal tests for Leicester City Council, but is also a further check and confirmation that requirements have been fully understood Texuna will employ Agile development methodology with a strong focus on customer interaction and collaboration. An iterative development process is utilised, i.e. its workflow represents a series of iterations that are outlined in the project commencement phase. Each iteration includes planning, requirements analysis, design, development, testing and stable release. A review is conducted with the customer for feedback and future priorities re-assigned if needed. The development process itself is built around the centralised code repository, where all the code changes are constantly submitted by any number of developers working concurrently on the project. At the start of any iteration, tasks are distributed between the team of developers using the tracking system and are completed with respect to priority set in the iteration planning phase. The online tracking tool therefore allows parallel work to be managed and tracked in a transparent and flexible manner. All releases follow a release management policy, which includes the packaging of releases independently of any transfer of existing data persistence. No data or metadata is migrated between environments unless this is done through release scripts. This ensures that releases are configured and version controlled with release notes and instructions without interdependencies between development, UAT and production environments. Each release package is fully self-contained for independent deployment and testing on isolated environments. This means that a refresh of the production database can be deployed to any other environment and a release package deployed to get a mirror emulating the Production release. Further, release migration between environments is strictly controlled. For instance, the client will have to sign off the release before promoting the package from UAT into live (Production) environments. As part of the final testing and assurance process, this conclusive UAT phase will ensure that all requirements are met. Automated unit-tests and regression testing procedures will be utilised during the development phase. A testing procedure (unit-test) is created for each feature (task) before it is submitted to the code repository. Each time a portion of code is submitted, the new build is automatically mounted and unit-tests are triggered not only for the newly submitted feature, but for all code in the project (regression testing). This will ensure that new code does not interfere with all features and tasks already implemented. Apart from automated unit-tests and regression testing, each release will be tested by our QA team with a variety of manual and automatic testing procedures. Automated tests procedures are implemented for every feature, and the release is also tested manually, testing includes: - Functional; - Graphic user interface; - Performance; - Load; - Integration; and - Configuration check-ups. In total Software testing will be undertaken at five levels: - Developer - unit testing of code - Tester - functional testing - Business Analysis - business/data testing - Customer (Leicester City Council) - acceptance testing - User – user acceptance testing Levels 2-5 of testing represents further functional testing and will be accompanied by a specific test plan and test cases for each release, as described in 'Planning and requirement analysis' and documented on the project wiki. The test plan and all test results will be subject to Texuna's peer quality review. Test plans will be signed off by Leicester City Council and the test results documented on the project wiki and resolution steps for issues formally reviewed at project meetings. All test results by all testing teams will be centralised on the project wiki; this will allow effective collaboration in the testing process. Any failed tests will subsequently raise an issue and the steps to be taken to resolve the issues listed on the project wiki. Whenever a problem is highlighted by our testing or QA team or during UAT, an issue is registered in a tracking system and immediately assessed by the development team. All high priority issues and bugs are resolved in the same release package Test plans will specify the items that the implemented solution will be measured and tested against. The test plans will include both objective and subjective tests. The test plans will measure the system against key product quality criteria. An agreed sign-off for the test plans will be required as these will be a key measure of quality for the implemented systems. The test plans will go through the same document control process as the specification documents. Prior to any Phase, Major or Minor releases Leicester City Council will be required to approve the release indicating that the quality requirements of the system release have met expectations (emergency release are exempt from this sign-off). If quality requirements have not been met but the release must be made regardless the quality requirement should be detailed along with the reason for non-compliance and actions to be taken in the Non-conformance log. Texuna's solutions are highly configurable and a most management tasks can be carried out from the within the backoffice administration section itself. When a deployment is needed Texuna system administrators will securely access the hosting environment, also securely transferring the RPM package (assumed via SFTP). Standard steps in a deployment/upgrade include: - Snapshot the entire cluster - Transfer RPM to the environment - Place any files/feed in appropriate predefined directories - Check that architecture configuration is correct by running defined scripts - Run deployment scrip - Check deployment was successful (result of scripts and deployment log is available) - Copy SSH keys on all servers (if not previously copied) - Configure Load Balancer for IP addresses as defined - Once testing is completed and successful, remove the snapshot. As deployments and/or scripts can be provided as executable packages with full instructions; this responsibility can be fulfilled by Leicester City Council as needed. Any	

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Leicester	Education	2FA	Look and Feel Requirements Branding requirements Internal: There is no mandatory stipulation on branding for internal systems, but where possible it is desirable the system allows for a level of custom branding giving consistency when viewed across the portfolio of internal Council applications. Public: Any public facing or external web pages must have the Council's website look and feel and this must be kept up to date. We anticipate that the LCC brand will change no more often than once per year and we would expect that the system supplier will implement the changes to be made within two weeks from being giving them or provide an interface so that LCC can apply branding as required. The cost for branding must be included in the tender price. Please describe how your system meets these requirements.	All aspects of the user interface and page-flows can be customised. Texuna are fully able to support brand identity, future changes and differing customised displays for particular user groups or user profiles. Over the years, Texuna has had a number of requests, from customers, to change corporate image and the branding within solutions. A flexible framework is in place within the web presentation layer component of Texuna's platform, to allow for quick and easy delivery of these updates. Texuna solution web-portals are developed using HTML5 technology, support responsive design templates and cascading style sheets. Solutions use the Wicket or Bootstrap Java web application framework. This supports a hierarchy of mark-up templates. Therefore, it is straightforward to make changes to mark-up templates and ensure consistent styling as and when needed, incorporating updates. The initial customised solution delivered by Texuna for go-live can incorporate LCC branding and 'look and feel'. This is a normal part of our implementation services and is carried out on all our projects. The implementation of the LCC's styling will ideally be achieved through the implementation of cascading style sheets and html pages. If the LCC styling should change, then new cascading style sheet can be incorporated in a straightforward manner. This quickly updates styling with minimal fuss and effort. Web-pages, downloadable help guides and other text is expected to alter and adjust with time, and this must be facilitated. Texuna solutions solve this problem with a straight forward, flexible and scalable approach. A Java based open-source Content Management System (CMS) is fully integrated within webpages (see http://www.riotfamily.org). This allows changes to any static content directly on a page without the need for a system release or supplier/development support. For instance, site pages such as "News", "FAQs", "Help" can be maintained independently and proactively in order to play to the strengths of a changing site and environment. Any CMS textual information contained within the site can be updated with ease and efficiency, as no prior technical knowledge is required. The CMS will also allow for documents (.pdf and .doc formats) to be uploaded and made available for end-users to download. It should also be noted that the Texuna solution supports workflow and customisation based on business rules that utilise the data stored or sourced. Display logic, workflow and client/server data validation can all leverage defined business rules. Texuna has experience of analysis, specification and implementation of complex business rules, data transformations and complex validations on both individual user record level and aggregated data to customise user journeys, processes and displays. Texuna would expect to define and introduce business rules during at initial configuration, in order to display information and content based on the type of user or the user's profile. For instance, based on accessibility needs, or targeting particular ages or interested groups with selected integrated services.	
LMU	Education	Application System	LMU operates a Prince2 methodology, please confirm your approach	Texuna use Prince2 to control contractual obligations in an open and transparent way between partners. Prince2 guarantees successful communication and collaboration across gated stages, assuring successful completion. Our project managers are Prince2 practitioners. Our LMU nominee is an experienced Project Manager who will maintain our track record of successful, on-time delivery in complex environment with multiple stages and stakeholders/suppliers by providing: - a controlled and organised start, middle and end of the EDW specification, development and delivery; - Regular progress reviews; - Management control over deviations from plan, and flexible decision points; - Excellent communication channels and stakeholder involvement; - Strong configuration management; Texuna's standard Prince2 practices are ISO9001 compliant including: - Communication strategy/plan, setup early, and maintained throughout; - Governance process, with escalation routes; - Phase and Stage plans, providing a basis for controls complimenting an Agile delivery; - Risk/Issue/Non-conformance log; - Quality plan; defining how outputs will meet standards; - Change control process where contract tolerances are exceeded; - Lessons learned log and Sprint retrospectives/review logs; and, - Regular reporting (weekly PM, Sprint Planning, Backlog Grooming, daily SCRUM, bi-weekly Sprint Retrospectives/Reviews); and - Detailed project/stage plans, progress reports (with 'RAG' ratings) and exception reports (if tolerances exceeded).	
LMU	Education	Application System	LMU prefers an AGILE SDLC, please explain how you will approach this cloud project	Our AGILE EDW methodology runs numerous data management/warehouse/analytics projects. Our interactive project management, business analysis and DevOps approach provides robust early stakeholder engagement through agile workshops to embrace change. We guarantee certainty on high risk projects, avoiding traditional EDW pitfalls by reinforcing our agile principles: - Collaboration (business project champion, product owner, developers, users) - Epics typically bounded inside 60-90 day timeboxes, balancing Prince2 gates with Agile delivery - User story, outcome-driven development - Continuous backlog grooming by ScrumMaster, Technical Architect, Product Owner - Production quality "definition of done" controlled by Technical Architect - Self-managed and organised teams with ScrumMaster coordination - 2-week sprints with retrospectives and product reviews - Story-pointed, incremental development with daily stand-ups Our deployment methods have been refined for cloud-first agility. We orchestrate ETL jobs with a metadata driven framework to give fast onboarding and high quality assurance when creating 'the truth' in a high fidelity, high confidence manner. Continuous integration and deployment and automation to remove complexity of setup/operation/improvement provides a high performance, high availability clustered warehouse with extended star schema. This represents the Texuna definition of agile SDLC, with frequent releases engaging users after each 2 week sprint and an early MVP deployment to production.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
LMU	Education	Application System	LMU require an understanding of proposed supplier resourcing to accommodate the governance, design , analysis, development, test and support proposed	LMU will partner with an exceptional Texuna team of individuals with significant EDW/BI experience within the HE sector. We will provide knowledge transfer while 100% focused on delivering an accelerated EDW solution. Founder & CEO Patrick Lynch (MSc in Data Warehousing/BI) will lead a highly experienced project team, most of whom have worked in senior roles Jisc and other EDW projects: * Project Director/Account manager: Patrick Lynch - Texuna's Governance (10% - not billed). * Project Manager and technical architect: Scrum master, sprint manager and backlog grooming (25%). * Business / System Analyst: Analysis and backlog grooming (100%). * Senior developer: DBA & ETL (100%). * Senior QA: Testing (50%). * Senior DevOps: Infrastructure and security (15% - not billed) In general, this gives an average of 3 FTE (full time equivalents) dedicated experts over the whole duration of the project - although this may flex according to project focus and priorities. The team strength represents about one tenth of Texuna's entire team - so we will be able to draw on additional expertise and support when needed. Only 2.75 FTE will be billable.	
LMU	Education	Application System	LMU require an understanding of client resourcing required and when, to ensure optimal effectiveness of the supplier resource proposal	Senior roles with low time commitment: * Project Sponsor (owns business case) * Project Champion (stakeholders engagement and organisation change) * Governance officer with authority to identity and marshal data owners, make improvement decisions, and allocate resources. Focuses on the people and organisational aspects of change. Key fulltime roles include: * Product Owner and project manager (doesn't have to be same person) who has the voice of, and can empathise with users and stakeholders to make priorities clear and urgently remove blockers; * Enterprise Architect to deliver governance work and manage stakeholder tasks along a data quality roadmap. Ownership of master data. * Systems and Data analyst role focused on connecting to source systems, identifying dirty data, and feeding quality improvement strategies back to data stewards and system owners. Tasked with realising the benefits of moving to a planned warehouse data pipeline, with responsibility for designing data transformations for master data and operational data. * BI power-users and developers to own business analysis to capture user stories, as well as design/redeploy BI reports. Optional role (can be outsourced as a managed service): * DevOps - to coordinate deployments for all releases between dev/test/uat environments (run by Texuna until after MVP deployed).	
LMU	Education	Application System	Please explain the proposed model of interaction with LMU in terms of interviews, workshops, delivery, knowledge transfer, testing and support	The critical factor for success is onsite staff interaction. Texuna suggest: * A one-day visual requirements workshop with broad scope and lots of stakeholders. * Limited Interview sessions when complex requirements are owned by a single individual, or small group, or changes are politically sensitive. * Some bottom up reverse engineering for a quick deep dive into existing SAPBO reports/scripts/source mappings. * During discovery, LMU project staff will need to participate in interviews/prioritisation workshops, acting as source system/data owner liaison to ensure fast access to systems and data. * LMU project staff should lead cross-functional discussions to develop the lingua franca and start the conformity. * A Kimball Enterprise Business Matrix will conform processes, attributes and dimensions. Texuna use a cyclical agile multi-step process to Elicit, Specify and Validate requirements. * During design, staff will contribute to modelling workshops, feeding back on high-fidelity prototypes. * Collaborative development and deployment needs a joined up LMU-Texuna team. * A joined-up team will deliver code and procedures for successful training and handover. * A joined-up team must participate in testing and acceptance after each sprint to facilitate regular production releases. * Client staff at all levels will be trained during transition.	Pic. 1 and 2
LMU	Education	Application System	Please explain the proposed model of communication medium in terms of on site or remote	LMU should expect some regular face-to-face onsite working - initially more intensive when close collaboration is most needed during initial discovery and for each Sprint Reviews every 2 weeks. Texuna will rotate many team members from our vairous offices to onsite regularly. This allows joined-up team communication and collaboration to oversee and manage progress effectively. Various specialists will engage directly with users and IT at LMU as needed, and there will be better broader upskilling of LMU staff in general. Some onsite sessions will be ad hoc as needed (e.g. DevOps for system / network access and hosting), as well as remote collaboration via tools such as chat/video and online wiki or document repositories subject to LMU guidelines. Texuna can provide online collaboration tools or work with LMU agile work tools, if already in place and suitable. Communication will be based on shared workspaces and environments with a single shared transparent project repository, where requirements, data models, documents and source can be shared. Should it be required, an independent peer review can also be requested to assure the quality of work delivered and to give suggestions for future directions.	Pic. 3

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Intro				Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.	
LMU	Education	Application System	State your EDW design and construction experience	Texuna focuses almost exclusively on HE sector data management solutions with multiple models: * Inmon 3NF operational systems and warehouses; * Kimball-style star schema with dimensional data marts; and * Dan Linstedt Data Vaults with full audit trail. As an AWS certified consulting partner, Pentaho certified partner and advanced open source expert, Texuna are vendor and stack neutral. We work with Hadoop, Spark, PostgreSQL, Oracle, AWS-Redshift, SQLServer, Azure, SAPBO, Tableau, Qlik, PowerBI etc. We have deep experience with SAPBO, and have worked with E5, Moodle, Banner etc. We provided Pentaho ETL expertise to the MOD and OBU. Texuna use data warehouse automation with metadata injection and deploy infrastructure as software. Our data pipeline design has been deployed and thoroughly tested on an industrial scale with huge amounts of sensitive data in a secure environment. At Jisc Texuna delivered a world class Kimball-based EDW design that integrates 3 business divisions to give a unified view of over 100 services across its Members and Suppliers. More recently we delivered a large scale multi-terabyte data vault with business insights for a large insurance company. Currently we are deploying an EDW for a large UK University focused on HESA Data Futures and Learner Analytics.	
LMU	Education	Application System	State your broad sector HE experience (applications and HE bodies – SITS, HESA etc)	Texuna has +15 years delivering HE data and reporting solutions to the Sector. We serve central government, HE/FE/Alternate providers and Schools, as well as MOOCs like Alison.com. Texuna delivers security and identity management, data integration, api-source provider, data registry, statutory report supplier, and sector data collector. We help with OFSTED/HESA/HEFCE submissions, data governance, management, analysis and reporting needs. We run discovery workshops, technical development, ongoing support/advice, onsite training and service operations. We have provided multiple solutions to University College Cork including a combined tech research centre. Texuna are currently implementing an EDW for Oxford Brookes University, working with Elusian Banner, E5 finance, SAPBO, Moodle VLE as well as learner analytics data and external market sources including Heidi+, DLHE and HESA data. Texuna recently delivered a hugely successful Jisc EDW on a fixed schedule and budget showing our ability to design and deploy a large and complex solution with tolerance for uncertainty within an agile environment. Texuna also delivered Jisc's Reporting Frameworks, utilised data from Jisc, HE/FE Providers and other relevant external sources (e.g. HESA). We have developed reusable frameworks as an asset that Texuna can easily redeploy for LMU.	
LMU	Education	Application System	State your HE EDW experience in terms of information content (SRS, VLE, Statutory Returns etc)	In 2003 NCTL's ITTDMS data warehouse was built, owned, and continues to be operated as a service by Texuna. We have collected, integrated, analysed and delivered data from complex and disparate sources including central HE sources (e.g. HESA, Ofsted, HEFCE) and 200+ HE and FE providers directly. HE finance data and datamarts have been added more recently. For the National Student Survey we collaborate with Ipsos Mori, HEFCE, and the HE sector to disseminate the annual survey results in a massive AWS Redshift warehouse, securely delivering confidential qualitative and quantitative data. The elastic service gives most support on the annual publication dates when most activity occurs. We also provide ad hoc querying tools to allow bespoke custom reports to be run in real-time in addition to standard default reports pre-prepared for mass downloads. Our FE Staff Individual Record Collection (SIR) for the Education and Training Foundation to handle student, study and staff records from SRS and HR (Core). Our Jisc EDW contains other HE data that is available across 100+ Jisc services. Data flows from 22 systems representing 100+ data streams relate to provider and student service usage (e.g eduroam, Janet network, or archives/journal use).	
LMU	Education	Application System	State your Data Futures/HEDIIP understanding and experience	Texuna's experience of HESA and Data futures/HEDIIP is based on collecting, integrating, analysing and disseminating statutory submissions over 15 years. We are part of the stakeholder group pushing sector evolution with the HESA data and collection processes. Texuna lead the partnership with NCTL, HEFCE, HESA and HE providers to pilot and prove the concept of in-year HE data collections. Similarly, Texuna have been engaged in the re-design of sector data models for learner records, and developed and advanced data integrations with HESA systems since the 2006/7 academic year in which we started transferring Student data in real-time. Texuna also partnered with HEFCE to recently deliver the Teaching Excellence Framework to the sector. Concerning the Data Futures programme, Texuna are already engaged through existing projects with NCTL and HEFCE. We are currently working towards HECoS within HEDIIP, as part of NSS informing future student choices. Texuna understand and support HEDIIP's motivations, methods and design. From the start of the LMU EDW implementation, and as HEDIIP develops out of Alpha towards full implementation, Texuna is committed to fully embracing the standards needed to give LMU a HEDIIP compliant target model as part of the EDW.	
LMU	Education	Application System	State your e5, SITS, SAP HR, Blackboard experience	Over 15 years Texuna have worked with HE and FE system platforms for finance, HR, VLE and student information systems including cross-sector data systems such as DLHE, HESA, HEIDI+, NSS, Unistats. Texuna are currently deploying an EDW with e5 and SAP at Oxford Brookes University along with Moodle, Banner and other proprietary systems. Texuna have worked with University College Cork where Blackboard and SITS are in use. A Texuna analyst has previously worked with SAP and SAP BO extensively during a 15+ year career, where he has taken data from SAP HR and worked with Data Services and managed SAP BO universes and metadata. At Jisc Texuna worked with 100's of feeds from different cloud API's and proprietary in-house systems including Salesforce, SAGE, Eduroam/Govroam, etc. Texuna have worked with Alison.com with millions of students and 10's of thousands of concurrent active learners inside a scalable Moodle VLE and Tin-Can-API. Texuna worked with FE, Work-Based Learning and Adult & Community Learning sub-sectors to create standardised integration methods with all the major HR platform vendors to collect workforce data and generate sector-wide management information for the LLUK Sector Skills Council.	
LMU	Education	Application System	State your SAP Business Objects BI Suite experience	Texuna has +15 years delivering HE data and reporting solutions to the Sector. We serve central government, HE/FE/Alternate providers and Schools, as well as MOOCs like Alison.com. Texuna has employees with 10+ experince in using SAP BO/BI Suite. Texuna employees have experience in delivering SAP BO/BI solutions for large organization in Educational, Financial and Oil/Gas sectors. Texuna has completed several large projects analysing, reverse-engineering and rewiring SAP BO universes. A major section of the JISC EDW project required Texuna to rewire a large financial and JANET operational reporting Universe with dozens of sources and over 3 thousand existing reports. We significantly improved performance of report generation, introduced historical data reporting and removed technical issues that blocked the creation of complex reports in the past. We also eliminated timeout throttling on legacy reports against transaction systems. Texuna are currently implementing an EDW for Oxford Brookes University, working with SAP BO/BI Suite, Elusian Banner, E5 finance, Moodle VLE as well as learner analytics data and external market sources including Heidi+, DLHE and HESA data. Texuna analysts are reverse engineering the SAP BI Suite ETL package in OBU to re-implement the same logic through our metadata framework, allowing the benefits of warehouse automation to be realised.	

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LMU	Education	Application System	State your 360Eye and 360View experience	Texuna has completed several projects analysing, reverse engineering and rewiring SAP BO universes directly using the metadata and are familar with what is involved. 360Eye and 360View bring some efficiencies to the process and if the software is available Texuna will use it to speed up analysis and automation of the wiki metadata reporting in particular. Delivering JISC EDW project we rewired a large universe with dozens of sources and thousands of reports. We significantly reduced Jisc dependence on legacy reports by using SAPBO metadata to identify the report users for over 3 thousand legacy reports, and assessing the frequency of usage and last time the report was run. Using this approach we were able to recommend the archiving over over 2 thousdand reports, and put an agile-based focused on improving key reports for key users that continued in regular use. Whereas Texuna uses rudimentary SQL tools to analyse SAP BO medadata, the 360 Suite provides a wider group of SAPBO administration tools for auditing, backup and recovery, security management, and impact analysis. These are essentially BO extensions that create additional reporting universes on installation to make it easier within SAP BO to report on internal metadata.	
LMU	Education	Application System	State your Microsoft Server experience	Texuna have implemented some of our largest and longest established client datawarehouse solutions on Microsoft Server technology. These include: * the NCTL data collection which gathers teacher training workforce data through up to 10 separate collections per year for almost 13 years. Texuna hold and provide access to approximately 20+ years of historic data. The datawarehouse has expanded over time from a single annual datacollection system to a multi-portal solution with access to data imported and verified against many third party solutions. Our Microsoft platform and design has proven to be robust and fit-for-purpose despite aggressive system expansion. * the Get Information About Schools service (formerly EduBase2) was initially implemented on Microsoft SQL server for almost 8 years and recently migrated to Azure + Postgres at the request of the Department for Education. The MS SQL database was used for over six years and the architecture proved robust and capable of migration to Azure with very few technical difficulties. Texuna solutions are platform independent and vendor agnostic by separation of logic from storage. Our technical staff are skilled and experienced in a broad range of technologies, including Microsoft Server and SQLServer.	
LMU	Education	Application System	State your Oracle experience	Texuna have implemented some of our Big Data projects importing data from sources based on Oracle technology, especially where Change Data Capture isn't available. Our team has extensive experience including: * Analysis of databases struture and PL/SQL scripts * Extraction of large data volumes from Oracle databses starting from version 9 * Integration with Oracle server and Oracle RAC (real application cluster) * Implementaion of various delta extraction strategies including Oracle Golden Gate, Tungsten Replicator etc In another example, Oxford Brookes University called on Texuna as a Pentaho expert to troubleshoot and resolve technical difficulties they had when trying to resolve Oracle connections through JDBC. Texuna has experience of historic data import of terabyte size volumes from Oracle databses and billions of records. The process is highly efficient and does not require source system downtime and does not cause performance issues to operational databases. Texuna solutions are platform independent and vendor agnostic by separation of logic from storage. Our technical staff are skilled and experienced in a broad range of technologies. This includes working with SAPBO on Oracle, as well as the migration and redeployment of SAPBO from in-house Oracle in a "lift-and-shift" to Cloud-based Microsoft SQLServer.	
LMU	Education	Application System	State your Azure experience (include any certification or partner levels)	Texuna have worked extensively with proprietary in-house, open source and public cloud infrastructures. This includes working with Azure for the Department for Education (DfE). We migrated existing solutions and legacy systems to Azure as a public cloud, and arranged all the necessary configurations to manage multiple environments and implement continuous deployment in a secure and quality assured way. For example; the DfE Get Information about Schools project (GIAS) formerly EduBase2: * GIAS - together with Government Digital Service Texuna initially deployed the legacy Edubase2 system to an AWS cloud hosted environment from an in-house data centre. With the launch of the rebranded GIAS service the whole project was moved to the Department for Education Azure public cloud. We implemented using the Azure PaaS capability to managed the infrastructure for backups, restore, load testing and other security and performance concerns. The Azure PaaS capabilities are understood and are currently managed effectively by our technical staff following this successful migration. Texuna propose using our cloud neutral approach for LMU whereby we will perform the inital delivery using AWS and then at the end of the four month project port the completed solution to Azure to conform with LMU infrastructure requirements.	
LMU	Education	Application System	Describe your high level delivery approach for the project as a whole stating clear outputs	A 4 month project will deliver a Minimum Viable Product (EDW MVP). Texuna will allocate approx 4 staff who will alternate onsite during an accelerated 1 month Discovery phase with quick successive deliveries in subsequent 3 months. Discovery will outline the design of achievable User Stories to deliver a Backlog. Analysis will be based on a top-down business driven requirements and a bottom-up analysis of data sources and quality - with productivity subject to successful collaboration with LMU team. LMU already indicated MVP priorities (Admissions, Learner Analytics, Statutory Returns) but Stories must be sumarised according to Reach/Impact/Confidence/Effort. This will give a priority score to establish 3 Epics for the MVP. Thereafter, LMU may continue beyond MVP with or without Texuna. Texuna will request full read access to SITS, E5 and SAPBO, and other relevant data sources required for the MVP - to be granted prior to end of Discovery. Only then will the main EDW infrastructure be put in place and tested. Texuna will be responsible for the infrastructure, and for speed of startup the initial deployment will be on AWS but redeployed to LMU's Azure account at the end of the MVP period.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
LMU	Education	Application System	Detail all LMU requirements for cloud based access for development, testing and operational usage (Stakeholder and Management)	Texuna access to source systems and data from AWS (and subsequently Azure) is a fundamental critical path item to be delivered ideally immediately upon project kickoff. The technical requirements to extend the LMU inhouse network to AWS/Azure, and to which Texuna will provide LMU access are: * VPN access to a VPC-secured ringfenced environments * 3 Environments will be Development, UAT and Production * AWS console for monitoring and management * Upon MVP completion, Texuna will migrate the environments to LMU Azure account. Thereafter LMU should consider integration of Identity and Access Management to enable Single Sign On for users and stakeholders. The business requirements for testing and BAU on AWS include: * Subject matter experts that can evaluate Texuna's test results and independently verify warehouse data delivered to the data marts * User Acceptance Testing of the data quality by LMU business users and experts through the SAP BO universe. * Comparison of existing predefined and cached reports on or data exports from SAPBO with new data produced via EDW. * Data analysts, owners and business users to collaborate to resolve data quality issues and a programme of continuous improvement.	
LMU	Education	Application System	Describe your approach to testing	Texuna uses best practices in EDW development including unit testing, automatic regression testing, continious integration, UAT sessions and nighly data qulity sanity checks on the live environment. This multi-step process guarantees a quality of reporting in an agile EDW environment with regular deployments across a large team. Texuna has developed a structured framework to automate repetitive ETL unit tests. All ETL code is covered by these unit tests which are split into test suits: * sources integration tests * bussiness logic tests * data mart population tests The Cruise Control integration tool is used to schedule test suite execution each night and to create a detailed EDW quality exception report for review by the team. Texuna performs UAT, demo 'show-and-tell' and regular testing sessions to validate and confirm data quality with data and reports owners before each data mart is initially released to a Production environment. Texuna also establish data quality reports. These reports provide detailed information about data quality in the EDW ODS tables and data marts. Any data issues are automatically reported to the EDW administrator. This guaranties that nightly delta imports are automatically controlled and issues reported.	
LMU	Education	Application System	Describe the delivery approach to documentation, knowledge transfer, handover and support stating clear outputs	Handover / BAU transition will be planned with LMU. The MVP Production deployment will act as catalyst to expand the business case and demonstrate ROI. However LMU collaboration and familiarisation with EDW working proactices during the 4 month MVP is a key part of knowledge transfer. Texuna will deliver Discovery backlog and reports along with automatically generated technical documentation to create a shared knowledge library: * Official Azure and Pentaho certification is essential for general upskilling. Texuna will indicate a training plan for key roles. * EDW training materials and user-guides and Texuna-delivered training sessions for key roles: ** Technical users (cross warehouse tools for development/troubleshooting). ** Power users (deep dive into tools). LMU BI staff will be responsible for maintaining and developing SAPBO report updates, but Texuna will demonstrate compatible options for connecting to the EDW. A wiki will be delivered, supporting goverance and user engagement, and as automatically generating data lineage and provenance: * Business glossary, data dictionary and metadata repository. * Metadata framework and testing framework overviews and training videos. * System administration documentation and screen-capture videos: (environments, deployments, Installation, upgrade, troubleshooting/FAQ, scheduled tasks, maintenance, monitoring, backup, BCDR)	Pic. 4.5 and 6
LMU	Education	Application System	Describe your approach to product acceptance	Texuna's agile delivery methodology gives clear structure and regular handover of deliverables on a frequent basis to encourage rapid feedback and regular releases. Texuna will complete project sprints each 2 weeks, with a sprint review with LMU at the end of each sprint. LMU will have the ability to contribute, reject or accept outputs and outcomes after each sprint - whether the outputs are documents, designs, or system releases. Formal releases to UAT will take place at the end of each month (i.e. each 2 sprints), and LMU will have 2 weeks (i.e. a sprint duration) to highlight any fixes required or to accept the UAT releases. In this way, a continuous approach to getting feedback and approvals for smaller chunks fo deliverables will be possible. This aligns to LMU monthly deliverables plan, and invoicing will follow each monthly deliverables acceptance. Final delivery of the MVP at the end of the 4 month project will allow 4 distinct, formal product acceptance signoffs. The final 5th product acceptance sign-off will be based on MVP migration from AWS to an Azure production environment, demonstrating a functioning EDW data pipeline from source to BI.	

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LMU	Education	Application System	Describe the licence requirements of all components	Texuna is an independent, vendor neutral system integrator, with expertise in both Linux and Windows based software stacks. For the 4 month MVP Texuna will deploy low cost linux-based services and then redeploy them on LMU Azure account on month 4. LMU should note that if they want to use Microsoft SSAS as the warehouse databse this will incur additional license fees). Texuna will also be able to provide an OSS alternative column datastore such as Postgres, Greenplum or MonetDB. The MVP stack is outlined below: AWS: * AWS Redshift and AWS Postgres RDS services. * Amazon EC2 certified Red Hat Enterprise Linux. * Billing handled through Amazon EC2 Pay-as-you-go. * No proprietary AWS tech is used - this allows MVP to be redeployed to LMU Azure account. * Texuna's infrastructure as software uses Terraform and Ansible to configure automated cloud deployments. Pentaho Data Integration: * Orchestrate data flows for metadata framework deployment * Annual subscription licence based on cores per server. * Texuna recommends the Standard, 4 core bundle server license. * The Production environment can be accompanied with cheaper evaluation licences for development/test environments. Reporting/BI: * LMU can reuse their existing SAP BO licenses (or migrate same licences to the cloud in future).	
LMU	Education	Application System	Detail the responsibility and relationship of each party in terms of the commercial arrangement	Texuna will provide a people resources, IPR and the Pentaho PDI licence to LMU under a fixed price commitment. Texuna's resource day rates are based on a blended £600 / day excluding VAT. No additional costs or expenses will be billable for expenses or subsistence. The PDI subscription will benefit from Texuna's education discount and is necessary to orchestrate dataflows and manage Texuna's metadata framework. Texuna will also provide free access to a segregated sub account under Texuna's AWS account for the duration of the initial build and deployment during month 1-4 of the project. Upon MVP completion toward the end of month 4 Texuna will, at LMU request, redeploy the working infrastructure on LMU's Azure account. LMU will be responsible for ensuring the Azure account is set up and configured to connect to LMU networks, with sufficient credit to deploy and operate the MVP infrastructure. Should LMU wish to migrate the warehouse database to Microsoft SSAS then the additional licence costs will be for LMU account. LMU will also need to provide data access permissions and network access during month 1 to Texuna to link the AWS cloud infrastructure and Texuna's offices in London and Cork.	
LMU	Education	Application System	Describe how you will take ownership of the establishment and management of the infrastructure during the project phase	Texuna have built up a significant intellectual property for the management of virtual cloud-neutral EDW over recent years. This allows Texuna to provide an agile service with datawarehouse automation and virtualised data marts under the Kimball methodology. Texuna uses Terraform and Ansible to enable infrastructure as software - meaning that an entire functioning EDW stack can be deployed quickly and configured automatically. This is already tried and tested in large scale projects. To accelerate progress during months 1 - 4 of this project to get a fully functioning Minimum Viable Product Texuna will initially operate within Texuna's own AWS account to allow agile prototyping and mirroring of LMU data. Texuna's major effort will be focused on the separation of LMU's existing source systems and SAPBO, with a view to inserting Texuna's EDW framework between them to establish the ability for LMU BI experts to easily do historic reporting as well as complex queries without impacting source system performance. Using Texuna's AWS account initially will ensure all effort is focused on LMU systems and data - not infrastructure issues on LMU Azure account. During month 4 Texuna will redeploy the infrastructure as software to Azure.	
LMU	Education	Application System	Describe your proposed high level infrastructure design to support the requirement (explain how the project development arrangement can easily move to a post project formal PaaS arrangement	The infrastructure is architected around a data pipeline orchestrated by Pentaho Data Integration. The EDW is fully managed, scalable for performance and petabyte analytics. Standard SQL-based clients and reporting/BI tools can be used. Existing BI reporting will continue via LMU SAPBO - Texuna will "re-wire" an alternative Universe to deliver existing data plus history from the warehouse. Initial deployment on Texuna AWS will be migrated to Azure and will eliminate unnecessary database licence fees yet keep the advantage of SaaS under LMU's own Azure account. Migration from Texuna AWS to LMU Azure will be automated to maintain the infrastructure and handle BCDR. The operation of the PDI workflow templates and warehouse automation is identicle between environments. Three separate, distinct, standardised environments, each with mirror/stage/ODS/MasterData/DWH databases are delivered: * Development * UAT * Production Provisioning is automated using Terraform/Ansible to configure OS/software on AWS or Azure i.e. infrastructure-as-software. Postgres SaaS is used to set-up/operate/scale the infrastructure, eliminating licences, installation and upgrade requirements. Texuna automates monitoring/metric management, Isolation & Security (data encrypted at rest). Machine images are stored for backup. Disaster recovery needs little downtime and no testing/debugging. Longer term files/backups are kept in cheaper object file storage.	Pic 7

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LMU	Education	Application System	Explain the benefits of your proposal in technical, business and financial terms	Fast deployment with agile prototyping immediately delivers significant benefits: * Technical: Ease of configuration/maintenance, no patching required. AWS/Azure SaaS components eliminate maintenance. Scalable easily to meet demand through managed UI. Benefits from Texuna Terraform/Ansible automation for infrastructure-as-software, giving instant business continuity and disaster recovery (BCDR). Cloud flexibility and Texuna metadata driven frameworks give simple support to changing business needs and business use case scaling over time. * Business benefits: Texuna maintain focus on business drivers/organisation change/governance and data quality improvements for long term success. Agile methods with Product Owner and user driven feedback from early MVP "keeps it real". User Stories driven by outcomes via Prioritisation matrix. New paradigm shifts focus to improving the maturity of "Data Assets Under Management". * Financial benefits: huge savings through infrastructure as software, just-in-time resources, and elimination of capital expenditure and licence fees in favour of subscription services. Significant savings in the elimination of security/backup/BCDR efforts. Standardisation of data pipeline drastically reduces troubleshooting time, speeding up productivity and agility. Self-service delivers immediate value to users. Conformed dimensions in a realtime warehouse with single version of truth eliminates debate over meaning of data.	Pic 8
LMU	Education	Application System	Explain how the incumbent client based SAP BusinessObjects could integrate with the cloud based solution	The biggest issue is cross-network traversal and security of data, and ensuring an audit trail of where data is located and how it is accessed at all times. A dedicated VPN cloud connection is used to extend the University network into the public cloud securely and privately. In Jisc, Texuna worked with SAPBO on-premise. A SAPBO audit of report frequency and usage was done to baseline activity. A new SAPBO Universe was defined as an alternative source for BI data (i.e. from the EDW on AWS, in parallel to the original connections). Key reports were duplicated and results compared for testing on legacy and EDW Universes. Later reports were modified or created to include historic data reporting. Unused reports were safely archived, and legacy reports were migrated to the EDW Universe over time as the business were happy to rely on the data. Network latencies were managed to ensure acceptable performance was achieved and bandwidth usage doesn't cause significant data egress charges from the cloud provider. Jisc decommission an Oracle database and eliminated egress because Texuna implemented a "lift-and-shift" of SAPBO to SQLServer in AWS (Bring Your Own Licence). Unused reports were archived and legacy reports slowly deprecated as EDW BI became more entrenched. Configuring Identity & Access Management is also crucial to give a seamless single sign-on experience.	
LMU	Education	Application System	Explain how the whole solution might be optionally migrated from the cloud to an LMU in house facility	The entire architecture is designed to be portable and cross-cloud compatible. With Terraform and Ansible you can migrate the entire architecture to Azure or in-house to a proprietary virtualised environment. Texuna's EDW workflow is fully PostgreSQL8 compatible. Solution migration on-premise simply uses standard RDBMS backup/restore procedures with little additional work: * Use (Redshift) warehouse UNLOAD function to save database objects to AWS S3 or Azure object store. * Process & Load the data from S3/Object Store to on-premise PostgreSQL server (open source). * AWS/Azure Postgres SaaS is equivalent to native PostgreSQL. Data can be easily migrated using standard tools (e.g pg_dump and pg_restore) - even across major software version differences. * Pentaho Data Integration server instance is migrated with automated provisioning tools (i.e. Ansible, Terraform) using nightly backups. The only significant question during migration is whether to push the Postgres-based warehouse to an alternative columnar database. Feasible options will require some additional work to set up but might include: * Microsoft SSAS (proprietary, requires licence) * Greenplum - recently open sourced big data columnar database * MonetDB - traditional open source columnar database for analytics.	

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LMU	Education	Application System	Explain the ETL tool integration and proposed usage by supplier and LMU	Texuna will configure LMU sources through Texuna's own metadata driven framework shared across jobs/transformations. The framework runs atop the Pentaho Data Integration (PDI) engine. A single credentials store ensures Information Security policy compliance. The "Spoon" designer client connects to PDI server to load/save/schedule transformations/jobs, share connections/clusters and run configurations. Git-based version control over ETL source code will be established. Automatic scripts are provided for distribution of published code (branch to server) to establish mature development processes with versioning, code review and controlled automatic releases. Pentaho has an extensive open source developer community and hundreds of built-in connections, transformation components and controls to maximise flexibility in use. Platform connections: * Legacy systems and non-relational proprietary formats * Structured databases, * Unstructured file systems * Semi-structured data sources. Native plug-ins: * Relational databases: Oracle, DB2, MySQL, SQL Server * Cloud/SaaS: Salesforce, Amazon Web Services * File systems: XML, Excel, flat files, web services /REST APIs * Hadoop/Hive: Cloudera, HortonWorks, MapR * NoSQL: MongoDB, Cassandra, HBase * Analytic tools: Redshift, Vertica, Greenplum, Teradata * Enterprise apps: SAP High performance data delivery: * Native connectivity/bulk-loading to most common data sources * Multi-dimensional format - analytics * Realtime data services - operational 3rd party applications * API integration support via REST/JSON and SOAP/XML web services.	
LMU	Education	Application System	Explain how the infrastructure can be managed by LMU	Texuna use Ansible and Terraform to provide much better control, understanding, predictability and automation over infrastructure deployments. The scripts will be available for LMU use: * Terraform: declarative tool to provision cloud infrastructure: it supports Virtual Private Cloud (Subnets, IP addresses, and other network settings); Virtual Machine instances (Servers with preferred Operating System), PostgreSQL SaaS; Warehouse Cluster; and interconnections between each of these components using Secure Groups, ACLs, and secure connections. * Ansible: configuration management tool that helps to configure the Operating System and internal software settings for each virtual machine deployed. It is useful to configure cloud servers as well as on-premise resources (e.g. adding/removing system users; Pentaho Data Integration configuration). This eliminates much of the burden otherwise on LMU sysAdmins. Texuna and/or LMU can also use the AWS or Azure Management Console to access and manage all resources through a simple and intuitive web-based user interface. Lots of guidance and training options are available around public cloud tools and services generally. LMU can access Monitoring, Billing, Storage Objects and much other useful information. Advanced users with Linux skills can also use the Command Line Interface to work with most cloud services on demand or through their own scripts.	
LMU	Education	Application System	State any SLA provided including frequency and type of updates and patching (encryption, bug, version update etc.)	The Pentaho Data Integration Server has two major releases annually, with maintenance releases monthly. Elswhere Software as a Service is used on Texuna's stack to automate patching and eliminate routine maintenance. SLAs on AWS and Azure are broadly similar and guarantee as a minimum: * Warehouse: Monthly Uptime of at least 99.95% for each node. All data is replicated across cluster nodes and continuously backed up to object storage. Failed nodes are automatically replaced. Periodic SaaS maintenance may result in unavailability if not planned in advance. * Postgres SaaS SLA: Multi-AZ (availability zone) instances available with a Monthly Uptime Percentage of at least 99.95% with service credits for failure. Periodic maintenance is automatic with patching scheduled only for patches that are security and durability related. * Virtual Machine Instances: at least 99.95% availability in each case during any monthly billing cycle. Best practice is to regularly patch, update, and secure the operating system and applications. Regular Images of Virtual Machine are taken for backups. * Texuna's SLA for ETL code and EDW orchestration generally provides for initial response within 4 hours and resolution within 8 business hours for Priority 1 (downtime) incidents, but is negotiable.	
LMU	Education	Application System	Elaborate on geographical sitting of hardware	The QuickStart guide and cloud templates from NCSC and CIS are followed by Texuna for UK-OFFICIAL workloads. Texuna has already deployed infrastructure as software that fully complies with this guidance. All cloud services are deployed in the UK-London Region. All Regions are fully isolated from each other, and it is not possible for data to pass between regions without actual configuration for this to happen. However, each region has Multiple Availability Zones. This means that the London Region consists of multiple data centres separated by a minimum physical distance and connected via a secure low latency fibre network. This provides better resilience in case of disaster. The exact locations are a guarded secret, but in general the following applies: * AWS provides information about its risk and compliance program to enable customers to incorporate AWS controls into their governance framework. * AWS has implemented a formal information security program designed to protect the confidentiality, integrity, and availability of customers' systems and data. * AWS publishes a public security whitepaper that addresses how AWS can help customers secure data. * The Cloud Security Guidance published by NCSC lists 14 essential principles to consider when evaluating cloud services. See https://aws.amazon.com/compliance/g-cloud-uk/	

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LMU	Education	Application System	Explain the licensing options	Pentaho PDI: * Licencing costs and options vary widely for analysis/reporting, data science or Hadoop node packages. Texuna only use PDI with Standard licence to run Texuna's metadata framework to minimise costs. * Pentaho term licence paid up front for minimum 3 year subscription * Texuna may finance a monthly payment subscription commitment subject to a 3 year contract * PDI runs on any generic Virtual Machine Instance * Dev and Test licences for the same number of cores as Production license are included for free. Public cloud (AWS/Azure) licenses through a pay-as-you-go model by the hour with limited or no licences required: * Red Hat certified and supported Enterprise Linux available with Premium Support includes Red Hat support and resolution for escalated issues. * AWS Redshift is SaaS and doesn't require licences, and SSAS on Azure may require a separate database licence. * Public cloud supports the notion of Bring Your Own Licence (BYOL) - you can deploy your SAPBO servers on the cloud without any need to purchase new licences if the old licences are in good standing and up to date. No other licences are required for the Texuna infrastructure as all mirror/staging/ODS/MasterData databases are based on Postgres.	
LMU	Education	Application System	Explain the licensing relationships between all parties	For the initial 4 month MVP Texuna will provide a fully managed service to eliminate delays in setup and deployment. Thereafter LMU has options which only need to be elected after MVP deployment (Business as Usual): * Texuna fully managed BaU service on AWS for a fixed price per month. This eliminates any technical specialisation for LMU so they can focus on BI and Analytics. * LMU managed service - after MVP deployment, Texuna will migrate all cloud licences and infrastructure to LMU Azure account. LMU manage BaU infrastructure and licence fees on Azure. LMU also acquire PDI licence through Texuna either as a monthly fee over 3 years or as a bullet payment up front. * Blended approach - e.g. LMU open own AWS and continue on AWS, or request Texuna to open a dedicated Azure account and run BaU on Azure as a fully managed service. Various approaches are negotiable. LMU ultimately must decide if it wants to build expertise on public cloud, or simply delegate responsibility for these to Texuna as its expert agent or a fully fledged service provider which may bring more predictable service and assured fees.	
LMU	Education	Application System	Explain how charges are managed	Texuna can isolate LMU from cloud charging complexity with a fully managed service based on actual experience/knowhow and LMU commitment to a monthly subscription. Public cloud offers myriad options which can result in unpredictable fees and levels of service on your account. Cloud sales are typically by credit card for small accounts which may necessitate use of a cloud broker/reseller to issue Purchase Orders etc. Options are: * On Demand: pay-as-you-go for each element. Can be configured to be elastic (responding to actual usage, and charged accordingly). Limits can be configured to cap elastic services. * Reserved Instances: fixed price for a fixed service configuration for a fixed term. May require an advance payment to guarantee infrastructure. Ignores actual usage but offers very substantial discounts. Huge savings on predictably constant workloads, for a predetermined amount of time. Reserved Instances can be paid upfront, partially upfront, or monthly, which determines discount applied. * Variable data egress charges to onboard and extract data from cloud network based on bandwidth usage. Detailed Cost and Usage reports that track service and estimate charges are produced but it is hard to predict costs and usage and to properly size infrastructure.	
LMU	Education	Application System	Please state any concerns regarding performance due to the mix of LMU based servers, connectivity and the cloud	LMU decision-making and governance will inhibit accelerated progress toward a working MVP. Delays to accessing systems and accessing data become major obstacles as we try to change people behaviours and business processes. . Thereafter, the architecture and infrastructure risks that need to be carefully managed are as follows: * account ownership and control - Texuna's project approach will deliver the MVP initially through Texuna's own discounted AWS-services to avoid expected delays concerning owership, control and modification of provisioned cloud services. Texuna will then migrate the configured services to LMU Azure account. * network latency - connecting the cloud infrastructure through a VPN over the public internet is not a viable solution for a production solution. It may be acceptable for Dev and UAT, but once MVP is deployed to a production environment a dedicated connection will be necessary. This may take some time to schedule and implement with Jisc over AWS DirectConnect or Azure ExpressRoute. * Realtime dataflows and reporting require a dedicated direct cloud connection. Performance will be subject to careful monitoring. The MVP should avoid realtime requirements on source systems. * SAPBO Universe connecting to cloud datawarehouse will introduce some challenges, but the majority of data calculations and aggregation should be pushed to the warehouse so that the query resultsets sent to SAPBO are minimised.	
LMU	Education	Application System	Please state awareness of complimentary services offered by Jisc, Express Route etc	As a Jisc member LMU can benefit from a virtual private circuit via the Janet network maintained by Jisc. JANET already has peering arrangements in place with each of the major public cloud providers, allowing HEIs to benefit from the high capacity low latency of the JANET network. This gives reliability, low latency and access to a cloud provider-backed Service Level Agreements. However access to these services may require at least 2 Janet connections - but no additional physical hardware is required to take advantage of this Jisc service. Jisc have negotiated framework agreements to contract cloud services through a number of independent providers. GÉANT have also recently negotiated Infrastructure as a Service framework agreements with the main cloud providers across Europe, and this can also be used by LMU. Furthermore, any Jisc member with a Primary connection to the JANET network is also elegible to use the Jisc shared Data Centre service, whether for research of regular administration system services. AWS DirectConnect and Azure ExpressRoute services guarantee low latency and high bandwidth for data transmission to and from LMU. Both services have gateway locations in London accessible through JISC Janet or partners. See: https://www.jisc.ac.uk/microsoft-azure-expressroute https://www.jisc.ac.uk/geant-iaas-framework https://www.jisc.ac.uk/shared-data-centre	

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LMU	Education	Application System	Explain the modelling approach to be use	Texuna create an enterprise data model across three layers, ensuring truthful accounts of historical data, and well designed fact/dimension tables: 1. Conceptual model of common dimensions. This will describe LMU's informational needs (processes, sources, facts and relationships). This is guided by the Ralph Kimball approach to common dimensional data models. An enterprise business matrix will define links and share different EDW-dependent data marts through common conformed dimensions. Reporters can then combine, drill across and analyse different EDW facts and measures together. Texuna will collaborate with LMU in workshops to produce this accessible and shared understanding of business drivers lying behind the analytics they direct at business problems. 2. Logical model Texuna will use a Star Schema as the basis for each subject-oriented data mart. This clear approach to describing data marts brings much needed simplicity to BI tool configuration and navigation. The Kimball Bus Matrix becomes the key to conformance over time as data is added and cleansed. 3. Physical model Engineers will optimise physical storage tables for persistence of historic data and managing slowly changing dimensions. For big data or sources with flexible schemas, a Data Vault method can be introduced to handle realtime updates and massive volumes - here data marts are built and published later after data cleaning.	Pic 10
LMU	Education	Application System	Explain how HEDIIP conformance will be approached	Texuna have been integrating, analysing and disseminating HESA data and statutory returns for years. Texuna data models have been aligned to HESA and Information Standard Boards (ISB) models for over a decade - including support for real-time HESA data exchange (currently implementing APIs for 2017/18 academic year). Texuna's expertise leverages the HEDIIP design, allowing wider use by the sector when collecting and integrating data. HESA/HEDIIP v4 conceptual and logical models will be incorporated into the LMU enterprise data model and Kimball bus matrix. Similarly, HEDIIP data items and HESA schemas will also be key considerations for master dimensions and LMU data governance. Texuna will bring it own HESA and HEDIIP models to LMU tohighlight key data quality areas for improvement. Ultimately, the EDW must be designed to fit OBU's business drivers and address LMU's business problems and opportunities. LMU must be at the heart of the EDWs design and implementation, rather than the HESA/HEDIIP model. Texuna will help LMU deliver an EDW that meets LMU needs with specific data marts and exports designed around HEDIIP and HESA standards.	
LMU	Education	Application System	Explain the approach to capturing history	Facts history is captured either as: * a Periodic snapshot - measurement events are sumarised over a predefined, standardised period (typically daily). The fact table granularity defines the period rather than any individual transaction. * an Accumulating snapshot - supports any event driven workflow process with a defined start point, series of intermediate steps, and an end point. Master data and dimensions are based on Kimball's "Slowly Changing Dimension" (SCD) strategies to logically implement database history tables. SCD Type II method is only recommended where necessary since Type I SCD in a simple star schema is significantly easier to configure for BI tools and to understand and navigate for BI users. However Type II provides time-variant master data records with unlimited historical tracking. <<IMAGE HERE>> Pentaho provides out-of-the-box metadata management, that automatically supports SCDs. A Dimension Lookup/Update component supports both SCD1 and SCD2 - both to look up values and make table updates within dimensions. Big data, or sources with flexible schemas are served better through a Data Vault for preparation/transformation where history is built into its audit trail. Subsequently, data marts are built after data is cleansed and confirmed.	
LMU	Education	Application System	Explain how certain aspects of the warehouse might be served with an increased frequency of update	Texuna's metadata framework allows frequency of updates to be stipulated independently. The frequency desired and extraction complexity will be analysed, specified and modelled for each individual data source independently during discovery before a recommended approach is agreed upon based on complexity and business impact. Texuna subscribe to the "right time, not real time", maintaining high frequency updates where business value is served. The "change data capture" strategy is driven both by business desires and complex reality. The right extraction method significantly reduces loads on source system and EDW support needs: * Increased frequency and heavy operations can be replaced with logical flags showing deleted rows. Downstream transformation processes use logical flags to quickly identify deleted data, rather than performing expensive outer joins between the tables at the data preparation layer. * Extracted table data structures will closely mirror source system data to speed up extraction without burdening source systems. * ETL hardware resources can be actively managed to allocate sufficient computational power for data cleansing/confirmation before data mart publication. * For large volumes of realtime data (Big Data or IOT) a Data Vault methodology may become more appropriate for data preparation. This only permits data inserts to the vault and is designed for high parallelism of model loading from source.	
LMU	Education	Application System	Explain the approach to ETL profiling, cleansing and lineage	Pentaho gives profiling and cleaning tools: * ETL routine previews data flowing from source to target, helping to profile data and understand quality. * 'Grouping' and 'statistics calculation' components create data profiles. * 'Data validation' component provides 20+ rules/checks/operations to configure a cleaning process. * 'Unique row' components allow for easy de-duplication. * Texuna libraries can help quickly clean common basic issues and known mappings to target data models. * PDI lineage is too complex to be useful and Texuna's metadata driven framework is combined with PDI model objects to deliver an automated informational wiki that makes navigating and debugging the EDW data pipeline significantly easier. Texuna will support LMU governance officer, analysts, and BI staff to profile and clean prioritised data. Data quality will be evaluated during Discovery, with achievable improvements and rules specified, modelled and tested. Data cleaning operations include: * Standardise data formats * De-duplication based on business rules. * Backfill missing data based on form and/or match to higher quality data. * Improve general quality (e.g. removing trailing spaces, etc). * Flag quality data changes back to source system owners. Where business rules can be identified to enhance the source system data, these can be pushed out of the EDW and back to the source, via an ETL job or an Enterprise Service Bus.	Pic 9

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LMU	Education	Application System	Explain the approach to conformance - Aggregation, granularity, drill down, across and time	Completing a Kimball Enterprise Business Matrix (EBM) helps prioritise and assure conformance. The EBM maps business process drivers against source data schemas, mapping metrics/calculations and interdependencies. Texuna conducts bottom-up analysis of source data (including historic data) and top-down analysis to elicit business-driven outcomes via workshops. Texuna then colates the results in a unified EBM to support decision-making and data grain definition for each business process, and identify any data gaps. The EBM delivers an evidence-based map of priorities to be worked through over time. Source data is collected at the minimal possible grain allowed by a business process. Aggregate fact tables then build task-specific data marts to maximise reporting performance. Drilling down and across needs well defined and conformed star schema. Finite hierarchies (small number of defined levels) are flattened and parent level references are simply stored as attributes of a dimension. Variable depth hierarchies require Bridge tables - adding a level of complexity for self-service BI that is generally best avoided. Once dimensions are conformed/lowest grain fact tables built, Texuna establish a Consolidated Data Mart, merging metrics across fact tables of the same grain. Aggregate fact tables are used to reconcile lower grain facts with higher grains, permitting drilling across data marts.	
LMU	Education	Application System	Explain how the proposed build can scale to support future requirements	The Infrastructure can be independently scaled, but the data model defines the architecture's true scalability. Texuna will design the enterprise model in a way that enunciates historic and current business drivers, while remaining sympathetic to future drivers. Designing and modelling well-defined fact tables and common dimensions with historic time-variance improves EDW model tolerances. Using a Metrics dimension can give extra flexibility for example. Physical level layout of dataflows and storage provide the technical foundation. Cloud hosting delivers scalable infrastructure in few clicks using vertical and horizontal scaling as business needs change, but this is not a substitute for well planned design and architecture. Texuna's multi-layer, modular EDW architecture makes each component future-proof and independently scalable. See: **<<INSERT BELOW>> https://drive.google.com/open?id=0By9tczBdzrl6akh5NFFPNngxQnM >>** Texuna's architecture has proven flexibility, allowing such EDW layers to be added or removed depending on the exact nature of evolving requirements. E.g. New layers can be added to separately collect only unstructured data into a Data Vault for big data analytics. It can be further analysed and transformed later within that logical layer without interfering with the other Levels of the EDW. Furthermore, Texuna's metadata injection framework makes adding new sources and mappings trivial to test and debug.	Pic 12
LMU	Education	Application System	Explain how other varied capability can be accommodated such as 'Big Data' and the 'Internet of Things'	Texuna's metadata framework is already in use to support both traditional EDW and a Data Vault for a big data deployment. The Hadoop ecosystem provides a variety of components to simplify a Big Data warehouse build. Pentaho integrates well with Hadoop, providing support for all major enterprise Hadoop bundles, and open source Hadoop distributions. PDI has a built-in Spark execution engine which can distribute ETL code across all Hadoop cluster nodes to boost performance via parallelism. A Hadoop cluster not only reduces the cost of data storage, but improves performance with each added node. Traditional EDW only distributes the processing load across source databases, ETL server and warehouse. A Data Vault approach to big data/IOT can be delivered via 3 layer Hadoop solution based on Apache software modules: **<<IMAGE HERE>>** The Data Vault methodology is used for data preparation. Designed to process large volumes and with history capture built-in, the Data Vault approach allows data marts to be built using the Kimball methodology subsequent to cleansing and completion of dimensional linkage. This approach makes big data/IOT integration highly performant while isolating all the complexity from business users who only want to see simple data marts.	Pic 11
LMU	Education	Application System	Explain how the workflows and processes of the warehouse can be managed	Texuna have embedded their metadata framework on the Pentaho Data Integration engine to handle all data pipeline orchestration. ETL jobs are standardised through the framework, and job workflows and processes are scheduled via PDI. Texuna's boilerplate code has been tested and proven robust across a number of projects, and standarisation makes workflow easy to understand. Configuration options are: 1. Static configuration through nested jobs, and links between jobs. This abstraction helps decompose jobs but doesn't give structure or predictability. 2. Enabling/disabling processes on-the-fly. The metadata driven framework eliminates the need for updating Pentaho objects or re-importing a repository. A configuration table with flags and metadata is injected at runtime to control job orchestration. The framework provides flexibility yet well defined structure via predefined main-job and sub-jobs. A Stop flag governs running process after each sub-process finishes. If an immediate stop job is required, the PDI Server web UI can be used. Jobs are scheduled using the Pentaho Scheduler: **<<INSERT IMAGES - CHECK TO ENSURE THEY DON'T MENTION WRONG CLIENT NAME>>** Texuna's framework automatically delivers job management information, creating an audit trail of load process id, timestamp, and controlling hashes. Data linage is easily traced from source through the warehouse to data mart views which faciliates navigation and debugging in a standard way. Execution time and data volumes are analysed in real-time with anomalies exception reports sent automatically.	Pic 21 and 22

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LMU	Education	Application System	What operational load management and performance measurement tools will be available	Exosed metadata allows load and performance measurement dashboards to be created from existing LMU BI tools. Texuna's framework provides great flexibility and audit trail because it captures all relevant information required for managing workflows, processes, data volumes and times. Dashboards track data from source to mart, enriching load/performance management information with history for automating exception reporting. Data load volumes and execution times can be analysed in real-time, with anomalies identified through exception reports automatically sent to system administrators (e.g. average performance tolerances exceeded or unusual data volumes processed). An ETL MI Dashboard can access: * Audit tables populated by Pentaho Data Integration (PDI) * Texuna framework metadata (execution time by process, records volumes, reconciliations issues, etc). * Preserved historic performance data, giving thoughtful insight into correlations between volumes and performance, the impact of latest updates, etc. The PDI design client also gives intuitive instruments for measuring and tuning performance. Step performance graphs analyse the size of input and output buffers over time to identify and resolve bottle necks, and embedded Gantt charts provide: * Execution statistics **<<INSERT PICTUER>>** * Job performance **<<INSERT PICTURE>>** **https://drive.google.com/open?id=0By9tczBdzrl6TEdvYndrV1hfbVU.** Cloud monitoring tools also give system-wide visibility of resource utilisation, application performance, and operational health. Query and load performance data further allows an understanding of the relation between database performance and warehouse cluster metrics.	Pic 23
LMU	Education	Application System	How will impact on live systems be managed	Source system impact will be minimised by design. Texuna will analyse usage patterns and minimal load durations to model and design the optimum types and frequencies of extracts. Options include: * Bulk extract - generally only useful for initial EDW population from source data (or backups). * Update notification - changes or 'deltas' in source data are identified by the ETL server. This may only be applicable to some online or real-time data sources. * Incremental extract - suitable where source data 'deltas' are tracked on a periodic or scheduled basis even though such changes may not be proactively notified. Monitoring is established to help control the execution time of ETL processes. When long execution is detected, or a process exceeds allocated time slots, they may be halted, skipped until next batch window, and/or notifications sent to administrators. If live systems are built in-house, and do not provide an extraction API - SQL views are used as an interface contract. ETL typically extracts data using Views that hide the underlying DB schemas. Such decoupling builds in tolerance for independent release change management in the underling database schema. Updates to SQL views preserve the availability of selected data while minimising aborted ETL jobs.	
LMU	Education	Application System	Explain the approach to reporting in terms of model design, metadata and delivery	A well designed data model simplifies the report designers life - the closer each data mart appears to a conformed star schema the easier the process. EDW views hide the complexity and present a simple model that is tolerant of any changes in the warehouse or ETL pipeline. Together with a "Single version of the Truth" Texuna will set up self-service reporting for LMU. To do this we will deliver some broadly defined, read-only 'starter reports' for each subject-oriented data mart. Any user can copy and customise these reports for their own needs. The star-schema also reduces loads on BI tools and eliminates the need for experimental user-defined table joins. Texuna will deliver an automated LMU 'Wiki' goverance tool that combines all ETL, EDW and reporting metadata in once place. This includes: * business glossary, * data dictionary, * data model mappings * report catalogue. End-users can nagivage the structures and details of data, dimensions and reports, tracing lineage from report to source system, making the EDW more accessible. Metadata is automatically generated nightly and includes user-defined custom fields in reports. This provides a transparent method to introduce auditing to ad hoc metrics, adding a layer of sense-checking verification that does not require reverse engineering the data.	Pic 17
LMU	Education	Application System	Outline your full access security proposal (as part of the information security approach)	Information security is built on understanding fundamental risks that lead to data loss and/or loss of stakeholder's confidence in the data. Texuna will facilitate LMU using a risk-based approach, whereby risks are identified, understood, mitigated, reduced, accepted - and ideally costed with a risk capital allocation. Texuna is certified ISO/IEC 27001 compliant. Different considerations are: * Texuna and other suppliers' commitments to information security * 3rd party Cloud security and supplychain security * Human resources - traditionally the weakest aspect * Operational and communications security * Segregation of datasets, system environments and access control * Encryption of sensitive data or all data at rest and in transit * Data backup and disaster recovery * Development process and penetration testing * Security Information Management System (incl. incident management) The aspects of our proposed architecture are outlined herein providing LMU with a clear understanding of what is expected to give assurance on information security. Active risk management/risk reduction will be conducted by Texuna in consultation with relevant LMU staff. Texuna regularly update a project risk register to manage the risk process, as well as installing security incident management processes to allow realised risks to be corrected and/or prevented in future.	

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LMU	Education	Application System	Outline your GDPR conformance	Texuna has developed and operates stringent data protection policies and processes under both ICO/DPA regulations and ISO 27001 processes. The company operates a process of continuous improvement and is implementing further refined policies and procedures to ensure conformance with GDPR and provide the 8 rights of individuals under the regulations. Where Texuna has determined that the company can be classified as data controllers, policies and procedures have been developed to ensure that data subjects are informed of the purpose of the data that is being collected, that the appropriate consents are obtained for the use of the data, that access is restricted and it is stored securely and only for the appropriate retention periods. Texuna does undertake minimal data processing activities on behalf of some clients. Where this is the case, such contracts are managed through the G Cloud framework which has made provision for GDPR compliance within the standard G Cloud call-off contract terms. In all instances, comprehensive processes already exist for managing data subject access requests, enabling the correction of inaccurate data or the withdrawal of consents where Texuna is a data controller.	
LMU	Education	Application System	Outline authentication and authorisation options	Texuna's proposed solution includes alternative access control methods so that LMU have a high degree of control both over the access method as well as the granularity of the permissions structure. This provides the ability to control user groups separately from what permissions they have to see and do things. Central LMU services should have updated procedures to control onboarding and offboarding of all joining/leaving users, including a review of the Access Matrix so access is revoked when users, contractors or employees leave LMU. The following authentication methods are confirmed to be available: * LDAP * Microsoft Active Directory * A local authentication method * Role based controls. In addition the following authentication methods are supported: * Single sign-on (SAML) * Shibboleth identity provider * Two-factor authentication Each of the following provide local authentication methods out-of-the-box with role/group based access and authentication control: * Pentaho Data Integration Server (PDI), * AWS Redshift and/or Microsoft SSAS, * SAP BI Suite Ideally these should not be managed independently but controlled centrally through one of the alternative authentication methods as listed above - these are easily configured to provide a Single Sign-On experience.	Pic 13
LMU	Education	Application System	Outline your design approach to security and audit restrictions	By default, Texuna solutions incorporate Privacy by Design - based on defaults like 'nothing-accessible and everything auditable'. This makes Privacy Impact Assessment easier, facilitating security by design for GDPR compliance. Security and audit strategies are centred around data and user access. Restrictions are only lifted based on actual requirements. Restrictions will be configured with the following principles: * avoid highly bespoke permissions on low level row by row granularity (simplicity facilitiates better management) * encrypt or hash sensitive data if privacy is required on a widely distributed dataset * separate the management of user mapping to groups from the management of group permissions * ideally integrate with enterprise Identity & Access Management (IAM) e.g. Active Directory * secure private data through restricted database views accessible to BI tools. Access restrictions are very flexible and may be applied per: * source * database * database schema * table or view including read/write permissions * physical environment (Development, UAT, Production). A multilevel Audit trail follows these principles: * User access control - so that permissions are granted to individual users. * All Automated ETL process uniquely identified in the logs. * Accountability for all updates/changes/additions, with viewable/searchable logs. * All data operations can be independently audited. * Logs from all systems streamed to independently secured, tamper resistent S3 buckets. * Logs subject to independent monitoring/analysis.	

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LMU	Education	Application System	Outline the design approach to addition of users and access to data	Access to data will be governed by source system for ETL jobs, and by LMU for new joiners and leavers (ie through HR and centralised IAM control). Centralised IAM will manage users, and line managers should request staff to be allocated to specific Groups. Texuna will work with LMU to define how existing Groups and/or new Groups will be required for EDW access. Groups will allocate flexible permissions which will be implemented across the EDW system and BI Tools. Control can be applied at database level, on views or tables, or on folder level (see diagram): <PERMISSIONS FLEXIBLE BY DESIGN - IDEALLY CHANGE TABLEAU / QLIKVIEW to SAP BO> PDI will be configured for each individual source system with separate distinct credentials. These are encrypted and stored outside of the ETL codebase, accessible only by authorised system administrations during release deployment. For EDW team an Access Matrix document will be created and reviewed monthly. It will contain a list of resources with per user access permissions. Steps to add users and to access servers, services and databases are as follows: * Granting access is based on a permissions-level evaluation. * The evaluation is based on information classification of the data. * Classification will determine from where and how data is accessible.	
LMU	Education	Application System	Explain how user access, data load, data movement and query generation will be affected by security measures	Texuna take a practical and pragmatic approach, designed to minimises disruption to LMU while simultaneously assuring all sensitive data is properly classified and securely managed. We will synchronise LMU Active Directory with the cloud hosting Identity and Access Management (IAM) to securely manage access through: * Custom IAM policies, with associated groups, roles, and instance profiles. * User and group configurations that are setup and managed with a fine degrees of control. The key aspects of this approach are: * user access is via IAM integration and managed through the normal LMU processes for onboarding and offboarding individuals. * data load is governed on a per source system basis, with encrypted credentials embedded in PDI by a DevOps system adminstrator at deployment. * no credentials are available to nor managed by developers within code. * data movement is automated and orchestrated securely by PDI. * datamart views control access to the EDW. * BI access is only via data mart views. * Any changes to Users roles or permissions are centralised through IAM and normal LMU processes. Single Sign-On is possible, giving a simple, secure, seamless end-user experience. The approach is flexibile and any changes needed by LMU can be discussed and designed during the Discovery phase.	
LMU	Education	Application System	Explain the approach to user and data classification	A User and Information Classification Governance document will be produced at the beginning of the project by Texuna and LMU collaboratively. Classifications will determine what strategies are applied to data and how users can access it. The Information classication is flexible, but Texuna has used the following classification types and sub types on data prior to applying obfuscation strategies: * SENSITIVE-PERSONAL: ** Legislative risk; * SENSITIVE-COMMERCIAL: ** Acceptable risk; ** Low risk; ** Identification risk; ** Commercial risk; ** Unacceptable risk. Classification subtypes are based on a risk assessment that will allow the most appropriate tools to be used during obfuscation processing: * No obfuscation * Shuffle obfuscation for development - values are shuffled in rows and/or columns hiding real data but preserving statistical information e.g. only on a column basis (max, min, average etc) * Hashing obfuscation - values in column are all hashed to irreversibly hide real values: e.g. personal data like firstname, surname etc * Synthetic sample data generation or differential privacy based on statistical properties of source data and the introduction of noise - in situations where obfuscation approaches are not enough	

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LMU	Education	Application System	Outline the audit approach for monitoring connections / disconnections / data access / data change	Texuna perform regular audits quickly and easily on a daily basis, using automation to drive exception reports. We typically use inhouse BI tools to build dashboards highlighting current status and to evaluate issues arising. This speeds up the development of corrective and preventive action plans. All infrastructure system logs are streamed in realtime to cheap cloud object storage which enables independent analysis and troubleshooting. This helps streamline system sizing and improves security defences and incident investigation. Texuna configure public cloud monitoring tools (which may be complemented with Nagios and Ansible Core where required) to constantly monitor infrastructure health and resource consumption, giving transparency over: * resource utilisation, * current connections, * data access and movement, * application performance, and * virtual machine operational health. Texuna will provide LMU access to the monitoring dashboard to show: * source system connections, * disconnection errors, along with * data changes like number of records processed, number of matches issues etc. Historic data access, performance and problems data is preserved and gives thoughtful insight on incidents and risk mitigation procedures. They also provide 'normal usage' benchmarks against which new automated exception reports can be set up.	
LMU	Education	Application System	Provide an overview of your Data Security proposal (as part of the information security approach)	The Texuna group and the services Texuna provide to customers, are all certified without exclusions by BSI to the ISO27001 Information Security Management System (ISMS) standard. Our certified ISO27001 approach will be applied to the LMU project. Intrinsic policies, processes and artefacts which will apply to all LMU EDW activities are: * Information Security Policy. * Risk Assessment Process. * Company and project specific Risk Register and active risk management. * Employee Security Agreement, contractually binding staff to observe policies and procedures that guard client data with care. * Working policy - security * Secure Development Policy - so all the code we produce has minimised risk of malware attacks. * Implementation of ISO27001 controls so that, for example, all access requires named individual access and authentication, users only access what they must be able to see, full operational process documentation, BC/DR tests and documentation. * Access Control Policy * Online incident tracking tool (including root cause analysis, corrective/preventive actions). * Continual Improvement policy We recognise our GDPR obligations as a data processor holding government data with personal information, and understand how to protect commercially sensitive and personal data. We have successfully completed many client audits and RMADS evaluations and have a qualified Data Protection Officer.	
LMU	Education	Application System	Connection - Outline the network infrastructure security design	British Standards Institute has audited each of Texuna's offices individually over the last eight years for ISO/IEC 27001 compliance. We have embedded a robust security culture, vetted by government clients and via RMADS. Our architecture exceeds that of the UK-OFFICIAL classification guildlines produced independently by: * National Cyber Security Centre (NCSC) Cloud Security Principles. * Center for Internet Security (CIS) Critical Security Controls. Texuna deployments include: * Standard, external-facing Virtual Private Cloud (VPC) Multi-Availability Zone architecture in London Region. * Separate subnets for public application tiers (bastion/management host). * Separate subnet for private (back-end) tiers for Pentaho and Operational databases. * Standard VPC security groups for virtual machine instances. * A management VPC hosting a secured bastion login host to: ** facilitate SSH command line access for troubleshooting and systems administration. ** centralise governance and security tools (monitoring/credentials/vulnerability/configuration management etc.). * Logging, monitoring, and alerts using configuration rules. To elimate human error, the entire network infrastructure is defined in software providing: * SSL/TLS support when servers are setup. * Transport layer protocols support configured through server installation script. * SSL and other protocol support is specifically and separately enabled for each application. * Full Transport Layer Security v1 and above (TLS) incorporating increased key strength.	

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LMU	Education	Application System	Encryption - Outline the encryption standard and overhead	Texuna know that sensitive personal data must not travel outside EEA even in encrypted form. Texuna applies encryption whereever feasible. Encryption is widely supported across AWS and Azure. A cloud-native implementation greatly reduces perfomance overhead and minimises technical complexity. Texuna automatically applies encryption to data at rest to: * BLOB/Object Storage Services (data buckets). * Multi-Availability Zone Postgres Database Service. * Warehouse database cluster, with transparent data encryption controls applied to confidential data. Access to encrypted data is closely controlled through: * Encryption keys for ciphering are stored separately from application databases to mitigate risks. ** Azure uses individual symetric keys to secure each database, and keys are protected by individual server certificates that are rotated each 90 days. ** AWS provides a Key Management Service (KMS) which uses a four-tier hierarchy of encryption keys: master. cluster, database and data. Data in Transit uses: * Industry standard SSL between an authenticated web browser using the HTTPS protocol (Transport Layer Security - TLS1.2). * A combination of algorithms to lock keys with ciphers: SHA 256 bit (SHA-2), RSA 4096 bits key, AES256-SHA384. * Further data encryption in transit through public cloud hosting for all IaaS, PaaS and SaaS services. * IPsec (AES-256, SHA-256) from inhouse through Virtual Private Cloud or Virtual Private Network.	
LMU	Education	Application System	Data Movement - Outline the proposed design of data flows during derivation with respect to secure permanent and temporary storage	Cryptographic controls are used for both data in transit and at rest, alongside attack-resistent infrastructure. Protections applied include: * SSL between web server and the authenticated user's web browser (TLS 1.2). * Data flows encrypted in transit between data stores - Virtual Private Cloud and Virtual Private Network (IPsec using AES-256, SHA-256). * ETL local processing with data encrypted at rest (AES-256) on all databases (Mirror/Staging/ODS/MDS/Warehouse/Mart). * All intermediary databases are automatically up in an identicle way and apply same levels of security in a standard way. Permanent and temporary storage is automatically encrypted: * Azure BLOB and/or AWS Simple Storage Service (S3 buckets). * Multi-Availability Zone Postgres Database Service. * Warehouse Cluster, with cryptographic controls applied to confidential data. Access to encrypted data is closely controlled: * Encryption keys for ciphering are stored separately from application databases to mitigate risks. ** AWS Key Management Service (KMS) provides high levels of security, without the complexity of a hardware module. ** Azure database symetric encryption key stored in a 90 day auto-renewed server certificate. Texuna will also ensure that all access is based on named users (no allowance for generic accounts/unidentified individuals). All user activity is logged, subject to independent monitoring and has tamper proof audit trail with logs streamed to independent storage. Access permissions are group-based and include database, schema and table based permissions. Data is obfuscated in development environments or encrypted for test and production environments according to information classifications.	
LMU	Education	Application System	Please provided ISO 27001 conformance details	Beyond our legal and moral obligations to protect data and manage information securely, Texuna have put policies, processes and procedures in place to institutionalise our commitment and create a culture of security by default. At the core of our information security is full conformance to ISO 27001, along with ISO 9001 and ISO 20000-1. Each of these information security, quality and service management systems, is externally audited annually and certified by BSI, with no scope restrictions. Regarding ISO 27001:2013, Texuna is certified by BSI, having held the ISO/IEC 27001 certification since 2009. External audits and certification apply to every office location across the organisation, and to every aspect of the work that we do including customer projects and systems. Our ISO 27001:2013 certificate accompanies this response. Please also note that both AWS and Azure cloud hosting are also ISO27001 certified and this will assure robust security architecture for the LMU solution.	
LMU	Education	Application System	Explain your approach to secure development	Texuna follows a formal secure development policy and development process that is audited and certified by the British Standards Institute to ISO27001, and ISO9000. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data. Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code is checked, validated and verified against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's QA team create and run tests for code and system vulnerabilities prior to any major production release. This review and validation ensures that code exhibits fundamental secure properties to include correctness, predictability, and attack tolerance. Texuna strategies include enclosing each environment securely at the infrastructure level (VPN/firewalls). Therefore, ETL routines deployed on development environments cannot access data on UAT or Production environments. This separation allows for the obfuscation of data while maintaining data integrity and the quality of data samples. This increases the number of developers and testers working with code in parallel without increasing access to sensitive information. Replication strategies are carefully considered to ensure data is sufficient/fit for purpose whilst removing sensitive information through obfuscation.	

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LMU	Education	Application System	Describe how your proposal will prevent data duplication whilst ensuring data integrity and quality	Data integrity and quality is driven by good governance tools and practices, which Texuna will deliver. We will ensure that all data loading is validated by ETL against dimensional attributes in the master data store and against the integrated Operational Data Store for metrics and transactions. Our approach is: * Understand data ownership: ** Data must be 'owned'. ** Data owners have editorial privilege (others report/reuse). ** Controlled stewardship enables quality and integrity. * Set priorities for data-related projects: ** Prioritised sources for transformation/load, ** High quality data is prioritised for matching efficiency and business impact. * Define day-to-day activities for creating/using/retiring data: ** Data currency is captured, so data archiving can be in-built. * Investigation based on audit trails: ** All EDW transactions are available for audit, lineage is clear. * Control completeness and business-rule compliance: ** Systematic data integrity through validations/mandatory fields/sanity checks. ** Exception reports (e.g. flag duplicate matches). * Implement processes to cleanse/transform/integrate/enrich fresh data across subject areas. * Address security and privacy compliance with Information Classification to identify and protect personal/sensitive data. * Manage master data by understanding assets and relationships: ** Master Data Management is enforced through a Kimbal data model, using a Slowly Changing Dimension to give a 'single version of truth' and improving quality.	
LMU	Education	Application System	Explain your approach to data taxonomy and ontology	Maximising the value of data assets under management requires committed governance, data taxonomy and ontology being fundamental aspects of Master Data Management. Texuna best practice in EDW taxonomy definition is: * A logical hierarchy, 5 levels or less. * Simplicity for different division/department users. * Conform to published standards (e.g. HESA, ISO, ISB). * Eliminate redundant metadata definitions. * Minimise abbreviations/acronyms. * Avoid 3NF and SCD2 in favour of plain star schema. Texuna EDW publishes a Governance repository (wiki) early in the project to control approved taxonomy/ontology, recording ownership and change. **<<INSERT DIAGRAM below 5.18>>** Artefacts include: * Business Glossary: Helping LMU to use consistent terms and vocabulary. * Data Dictionary: To document data, meaning and allowable value ranges, so data can be validated against controlled vocabulary. * Master data mappings: schemas to clean data, control transformations and conform dimensional attributes according to business rules. * Metadata Repository: Providing information about data marts, report catalogue, dependencies and data lineage. Quality is improved and burdens reduced through automated publication (on demand, up-to-date documentation). We publish data mart structures and conformed dimension values directly to the wiki daily. Permissioned users can further add/update supplementary contextual information to extend the wiki library. A Semantic architecture is required to support qualitative unstructured data analytics. Enterprise-wide consistency will allow inferences to be drawn and shared without vagueness.	
LMU	Education	Application System	Describe how data auditing will be implemented	The Key benefits of a self-publishing metadata repository, outlined above, are highly accessible data auditing and simple traceability of data lineage. Comprehensive audit trail capabilities are incorporated into the publication enabling the validation of report data back through to original source systems. Users wishing to audit or trace results back to source data are able to navigate and interrogate the data dictionary to confirm the meaning of any data element, what data it contains and what changes to taxonomy/ontology have occurred during transformations. They may also follow diagram dependencies and links to reveal the source of the data and/or the transformations/mappings applied to the data. Users with elevated permission may also interrogate the source data via an SQL client, so that the accuracy of the ETL processes can be confirmed. Comprehensive data tracking is also supported thorough the ETL audit process. Audit trails are implemented on every automated process, such as web service uploads, allowing unique identification within recorded logs. Exact data sources can be traced to the date and time of the upload. Complete accountability is further assured as all updates, changes and additions are available in viewable/searchable audit logs.	Pic 14

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LMU	Education	Application System	State all governance outcomes that will be initiated and defined in operational workflow. These should include metadata, data dictionaries, schemas, business glossaries, controlled vocabularies, master data mappings, ERDs and report catalogues	Texuna recommends that the data governance framework includes a data dictionary tool as the definitive record to manage data ownership and change, this means: * The data dictionary represents a structured catalogue of metadata (data about information items and assets) which is always up to date. * Relationships are mapped to the business glossary and business people (data owners). Texuna's auto-published metadata repository is part of wiki framework that provide complete information on: * Business glossary * Report catalogues * Data dictionary and controlled vocabularies * Master data mappings * Source data ERD and Warehouse Star Schemas Texuna's automation of metadata management keeps metadata up-to-date. A high level diagram of proposed solution is shown on figure below. <<INSERT FIGURE >>**Figure **: Reporting Provenance <<EDIT to Qlikview>> Texuna's EDW includes: * ETL process to automatically publish EDW data mart structure and conformed dimensions values to Wiki. * Ability to publish pages for data marts with fact table and dimensions list. * Navigation links between pages to drill into table structures described in detail. * An ability for endusers to add metadata annotations, which is preserved.	
LMU	Education	Application System	Describe all governance outcome based documentation that you will produce	Texuna will create and deliver a documentation library which openly and transparently demonstrates our working practices and ongoing progress. This is populated with a: * Stakeholder Analysis and Communication strategy outlining how LMU will be engaged so the EDW project's can meet objectives. * Access Matrix with User and Information Classification Governance document (described above). * Discovery report outlining business driven requirements with evidence-based prioritisation and plans (criticality vs complexity). * Data contracts/agreements with source systems for data supply. * Project risk register encompassing data governance/quality risks as needed, with steps an actions to be taken. * Kimball Enterprise Business Matrix outlining processes and describes LMU's informational needs. * Data Dictionaries. * Controlled vocabularies based on LMU and sector standards for master data store. * Business glossaries. * Master data mappings that map data between source systems and master/sector data standards. * Schemas describing data marts, preparation tables and source tables (including any processing rules applied). * Report catalogues. * Catalogue of impact analysis, showing diagrams of data flows automatically generated by Texuna's framework based on audit tables during ETL. * User friendly documentation/handbooks, video tutorials, FAQs and discussion forums to capture 'tacit' knowledge and governance detail. * A collection of User Stories arranged by Epics for delivery in Rolling Waves, with updates as the project progresses. * UAT guidelines for capturing bugs that can be recreated and collecting enhancements.	
LMU	Education	Application System	Describe how data ownership and stewardship will be implemented	Introducing an enterprise-wide data governance program is a complex undertaking. The diagram below shows the key facets to achieve this. Defining custodianship is a core enabler, and Texuna evaluate several dimensions to ensure it is effective: Data Type * Accountabilities tied to master/transactional/reference and metadata. * Data-related responsibilities may be tied to a subset of types of data rather than all. Subject Area * Accountabilities tied to subject areas (e.g services), but are limited to a manageable set elements. * Accountabilities assigned include to standardise data elements and to address data quality in a subject area. Granularity * Accountabilities often encompass documents, feeds, records and attributes. Ensure flows * Care must be taken to ensure stewardship does not complicated data flows (segment as needed e.g. for access control vs quality). Under Texuna's approach, documenting data flows, and assigning clear data-related accountabilities allows multiple data stewards to act as subject matter experts (business role) and data custodians (technical role). This is supported and reinforced by data contracts/agreements with the EDW. The final vital enabler for custodianship is visible top management support through nominated Project Sponsor and Product Champion. This ensures that accountabilities are not only committed to and taken forward, but it also endorses that the resources needed are available.	Pic 15
LMU	Education	Application System	Describe the proposed approach to Business Continuity Resilience	Texuna has more than a decade ensuring business continuity. Achieving compliance with ISO 27001 and ISO 9001 standards was a key part of establishing a resilient, process based culture not dependent on any key individuals. Texuna's risk and incident mananagement, with corrective and preventive actions and estimated risk capital allocations helps proactively control risk - as audited by the BSI. As a people service and a technology based enterprise, ISO9001 and ISO27001 certification adequately cover all key activities with significant overlap. Resilience is achieved through designing flexible architecture for both internal operations and for clients, a portable yet security hardened infrastructure is used that is cross-cloud compatible. Most infrastructure is developed to be defined in software to maximise this resilance. For LMU the use of cloud hosting provides a highly resilient EDW solution that will be maintained through frequent back-ups, mirroring and regularly tested BCDR that has already been battle-tested. Texuna provides performance, smoke, penetration and disaster recovery testing to ensure the resilience of all deliverables. Lastly, a multi-location offices and support for home/remote working, means no single vulnerability exists that presents an unacceptable risk.	

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LMU	Education	Application System	Describe the proposed approach to Business Continuity Recovery	Texuna's approach mirrors the public cloud philosophy of disposable services. Infrastructure and services are "throw-away" and easy to restart to minimise operational impact. Texuna's multi-site business means alternate, cross-trained personnel are available to resume services throughout a recovery. Texuna's multi-cloud expertise allows us to deliver quasi-automated recovery to any other cloud. Our solution is comprehensive: * Terraform scripts describe infrastructure as software, enabling quick and seamless recovery and re-deployment. * Warehouse cluster can replicate all data across multiple nodes, continuously backing up data snapshots to Blob/object storage. Any existing snapshot can automatically restore the warehouse. * Pentaho Data Integration (PDI) Server virtual machines uses Disk/Block Storage volumes for data with backup to Blob/Object storage. Weekly backups store server configurations and daily backups store ETL repository to track batch load jobs. Ansible configuration ensures all server and application services work as expected if PDI is recovered. * PostgreSQL servers uses a multi-zone highly available configuration in Production for valuable data (ODS/MDS). Development and UAT environments use snapshots and daily historical backups. The daily logical backups (SQL dumps) are saved using temporary isolated and encrypted virtual machine instances, running through the AWS Lambda service or Azure Functions. Historical backups are eventually transitioned to the cheap, secure and robust Glacier/Azure Backup solution to give multi-year cover.	Pic 16 and 18
LMU	Education	Application System	Describe the proposed approach to Business Continuity Contingency	Texuna's impact analysis on risks and contingency planning has multiple layers that encompass technology/infrastructure, services, offices and personnel. Personnel: sophisticated recruitment, remuneration, education/training, personal development plans and performance management are put in place. Non-core roles can be outsourced if required. Services/offices: As a multi-site operation, extensive contingencies are designed into operational protocols. Should one location experience a business continuity event, contingencies are in place that allow for the other Texuna locations to seamlessly provide uptake of all services (periodcaly tested). Texuna also allow for homeworking and frequently work onsite with clients, also demonstrating Texuna's ability to work from anywhere. Texuna's secure cloud hosted project management/CRM systems allows project teams to access communications and configuration items, allowing all staff to work from anywhere, with negligible impact. Technology/Infrastructure: Texuna's entire infrastructure is portable and adaptible to any cloud using Terraform & Ansible provisioning tools to safely and predictably make changes to infrastructure. Together with Texuna's metadata framework this provides full data warehouse automation in a standardised way so that skills and knowhow is easily transferrable. In the last 12 months the ability to move Texuna's and client resources between onsite, inhouse, AWS and Azure environments has been tested successfully. This gives multiple contingency options.	
LMU	Education	Application System	List any standards adhered to such as ISO - ISO 22301:2012	The entirety of Texuna's operations, including internal processes and the projects delivered to customers, conform to each the following standards: ISO 27001:2013 - Information Security Management Standard. ISO 9001:2015 - Quality Management Standard. ISO 20001 - Service Management Standard. All offices and locations are externally audited, and are certified, by BSI on a regular schedule and over a three year cycle. The Information Security Management Standard also covers Business Continuity and Disaster Recovery (BCDR) procedures and does not specifically require separate standards or audit. Texuna is effectively compliant with all the obligations under ISO22301:2012 and these have been audited under ISO27001. Texuna also holds the ISO 14000 - Environment Management Standard.	
NSS	Education		Give details of the type of network system and application you will use to process the information asset. In particular, specify whether the system is stand-alone, attached to a corporate network or connected to the Internet.	Texuna Technologies Ltd is a certified partner of Amazon Web Services. We propose to host the NSS Results Dissemination portal on our AWS managed environment. The portal will be hosted in a dedicated area, not shared by other clients and systems and is subject to Texuna managed services. For the duration of this contract, Texuna will move the NSS Results Dissemination portal to the AWS London region datacentre for hosting services.	
NSS	Education		Confirm the system is running currently supported versions of operating system and other software and that these are regularly patched as required.	Our managed hosting is in the AWS London region. Only currently supported version of the operating system will be used for this project. AWS RDS (relational database services) will be employed for this contract. AWS RDS management tools provide facilities and services for managing the environment and these are used by our System Administrators. Patching can be automated. Automated services are used for security related and durability patches only. Otherwise AWS management and maintenance tools provide an easy-to-use front end to manually manage the hosted environment.	
NSS	Education		Will the computer system hosting the information asset be accessible to remote users, such as via a dial-up modem or remote access over the Internet? If yes, please describe the requirement for remote access and whether any encryption over the link is in place (e.g. VPN, SSL/TLS). Indicate how remote users are authenticated to your system.	The NSS Results Dissemination portal is available over the internet. Authorised users must logon to access the services to which they are entitled. Data that is accessible by logged on users via the portal is anonymised data which is commercially sensitive rather than personal data. Texuna has deep encryption experience, and we apply encryption wherever possible, since it is widely supported across AWS. This cloud native implementation greatly reduces performance overhead and minimises the complexity. Texuna automatically applies encryption to data at rest to: * AWS Simple Storage Service (S3 buckets). * Multi-AZ Relational Database Service (AWS RDS) PostgreSQL. Data in Transit uses: * Industry standard SSL between an authenticated web browser using the HTTPS protocol (Transport Layer Security - TLS1.2). * A combination of ciphers to ensure keys with cyphers: SHA 256 bit (SHA-2), RSA 4096 bits key, AES256-SHA384. * Further data encryption in transit through AWS cloud hosting for all IaaS and SaaS services. * IPsec (AES-256, SHA-256) from inhouse through AWS Virtual Private Cloud or Virtual Private Network with AWS Direct Connect.	

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NSS	Education		Confirm that appropriate security access and/or firewall controls are implemented on: ● The system hosting the information asset. ● Any LAN, WAN or Broadband / ADSL router to which it is connected (whether physically or wirelessly).	Texuna implement a strategy of minimal attack surface. All application resources are secured by firewall and only minimally required ports are open. Security rules defines ranges of IP address that may initiate connections on specific ports. AWS provides several security capabilities and services to increase privacy and control network access. These include: • Built-in firewalls that configure private networks within AWS, and control network access instances and subnets • Encryption in transit with TLS across all services • Connectivity options that enable private, or dedicated, connections from offices or on-premises environment • DDoS mitigation technologies as part of auto-scaling or content delivery strategy	
NSS	Education		Can you confirm (and provide evidence) that copies / backups of the information asset will be subject to the same security standards as the systems holding the live information?	Texuna's approach mirrors that of AWS, making our infrastructure and services disposable and easy to restart to minimise impact on operations. As a multi-site operation, alternative personnel are cross trained, so services are available throughout a recovery. Texuna's multi-cloud expertise and infrastructure as software, with regular back-ups, gives quasi automated recovery. For our NSS solution: PostgreSQL RDS uses a multi-zone highly available configuration in Production for valuable data. Development and UAT environments use snapshots and daily historical backups. The daily logical backups (SQL dumps) are saved using temporary isolated and encrypted EC2 instances, running through the AWS Lambda service. Historical backups are eventually transitioned to the cheap, secure and robust Glacier solution to give multi-year cover.	
NSS	Education		Describe the physical security arrangements for the location where the information is to be: ● Processed ● Stored (if these are different)	Texuna propose AWS cloud hosting for all working environments that will contain NSS data. These are the UAT and Production environment. Our development environments use test data only. Access control is used to severely restrict access to the working environments to those staff who are actively engaged on the NSS project. Other staff are not granted access permissions. Access to Production is via user authentication - unique and individual logon and password allocated only to active users who are at NSS institutions or project staff. NSS data is not held on laptops. However all Texuna laptops are encrypted by default using FIPS 140-2 certified products.	
NSS	Education		Where do you plan to store and/or process the data that we may provide? ● UK mainland with no IT connection to public networks (e.g. Internet). ● UK mainland, but with accredited IT connection (e.g. GSI, JANET) to a public network. ● UK mainland, but with non-accredited IT connection to a public network (e.g. Internet). ● Accredited overseas offshore solution. ● Overseas (including online services where our data is not guaranteed): a. EEA b. US c. Elsewhere d. Don't know	NSS data is stored and processed only within the EEA area by Texuna and is not transferred outside the EEA. Texuna use AWS London Region for our UK based projects. We also use AWS Dublin Region for some services and may use this zone as a location for secure backups to give location independence.	
NSS	Education		What policies do you have in place: ● Dictating when the information asset can or cannot be printed in hard copy or written to removable media? ● Covering the handling and control of any hard copy and/or removable media containing the information asset? ● Dictating when the information asset can or cannot be transmitted electronically e.g. e-mail?	Texuna's information security policy is the overarching document that establishes our approach to information security. In addition, Texuna has internal policies and procedures that all staff are bound to follow. These ensure our staff handle any client data responsibly and guard it with care. Data is not transmitted over email. Texuna use a secure file transfer mechanism which forces deletion of the data after a short period. Printed or removable media copies of data are prohibited. All staff are contractually required to follow our DPA guidelines and any abuse is a disciplinary offence. NSS data is not held on laptops. However all Texuna laptops are encrypted by default using FIPS 140-2 certified products.	
NSS	Education		Confirm that the information asset will be encrypted if: - Electronically transmitted, copied or transferred outside your secure environment in its raw form or across an unsecured network. - Stored on a standalone PC in an environment without layered physical security.	Texuna always uses secure channels as standard when any data is to be transmitted. All laptops are encrypted as standard - as noted above using FIPS 140-2 compatible encryption. Please note that we will not copy or transmit any raw form data outside our organisation's secure environment for the duration of this project.	

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NSS	Education		Does everybody in your organisation handling information know and understand when they can / cannot share information with other members of staff?	Secure information handling is part of Texuna induction training and is covered in our internal procedures. Staff understand the obligations that Texuna has towards security of our client's data. Our employment contract documentation makes it clear that compromise of personal data is a disciplinary offence.	
NSS	Education		Do you have documented control measures in place to regularly review the people, processes and technology risks that may impact upon your arrangements for secure handling of the information asset?	Organisation level risk management is a vital part of our Information Security Management System. Our risk register is reviewed quarterly by our standards offices with the last review being November 2017. The risk register is reviewed annually by our external auditors, BSI.	
NSS	Education		Are there arrangements in place to routinely monitor and audit access to the computer system and address any potential misuse / abuse or breaches of the agreed information security controls?	AWS utilizes a wide variety of automated monitoring systems to provide a high level of service performance and availability. AWS monitoring tools are designed to detect unusual or unauthorised activities and conditions at ingress and egress communication points. These tools monitor server and network usage, port scanning activities, application usage, and unauthorised intrusion attempts. AWS security monitoring tools help identify several types of denial of service (DoS) attacks, including distributed, flooding, and software/logic attacks. When DoS attacks are identified, the AWS incident response process is initiated. In addition to the DoS prevention tools, redundant telecommunication providers at each region as well as additional capacity protect against the possibility of DoS attacks. The AWS network provides significant protection against traditional network security issues. The following are a few examples: • Distributed Denial Of Service (DDoS) Attacks. AWS API endpoints are hosted on large, Internet-scale, world- class infrastructure. Proprietary DDoS mitigation techniques are used. • Man in the Middle (MITM) Attacks. All of the AWS APIs are available via SSLprotected endpoints which provide server authentication. • IP Spoofing. Amazon EC2 instances cannot send spoofed network traffic. The AWS-controlled, host-based firewall infrastructure will not permit an instance to send traffic with a source IP or MAC address other than its own. • Port Scanning. When unauthorised port scanning is detected by AWS, it is stopped and blocked. • Packet sniffing by other tenants. It is not possible for a virtual instance running in promiscuous mode to receive or "sniff" traffic that is intended for a different virtual instance. https://d1.awsstatic.com/whitepapers/Security/Networking_Security_Whitepaper.pdf	
NSS	Education		What are the system's internal / external audit arrangements?	Texuna Information Security Management system mandates that our processes and procedures are subject to internal audit and we follow an annual audit programme to check effectiveness and compliance. Audit checks include disaster recovery processes. In addition, Texuna performs performance and penetration testing audits for each release deployed to live environment. These checks are performed by our internal testing team and included within the contract price quoted. The Council is at liberty to purchase further penetration tests from a third party supplier and Texuna will provide support for any such additional tests. Our ISO27K policy requires that all Critical and major security vulnerabilities being fully addressed prior release to live environment.	
NSS	Education		Describe the method of data destruction you will employ when you have completed your work using the information asset.	Texuna internal staff policies and procedures instruct staff on responsible information handling including destruction of data when it is no longer required. Printed and CD/DVD media are securely shredded. Any data feeds that have been sent to Texuna are managed through a secure file transfer mechanism that automates deletion after a set period. Copies of feeds are securely deleted once they have been processed. Data is not held except for in the client Production and UAT managed hosting environments. The master version of the client data is held only in the Production environment with backups also hosted in AWS. AWS uses the techniques detailed in DoD 5220.22-M ("National Industrial Security Program Operating Manual ") or NIST 800-88("Guidelines for Media Sanitization") to destroy data as part of the decommissioning process. More information on this can be found: http://awsmedia.s3.amazonaws.com/pdf/AWS_Security_Whitepaper.pdf http://aws.amazon.com/compliance/	
NSS	Education		If not securely destroying storage media holding the information asset, name the product that you will be using to securely erase the media prior to it leaving your premises.	AWS uses the techniques detailed in DoD 5220.22-M ("National Industrial Security Program Operating Manual ") or NIST 800-88("Guidelines for Media Sanitization") to destroy data as part of the decommissioning process. Here is more information on this: http://awsmedia.s3.amazonaws.com/pdf/AWS_Security_Whitepaper.pdf http://aws.amazon.com/compliance/ Texuna staff are required, by internal company policies and procedures, to ensure that any data or sensitive information is managed responsibly and deleted / disposed of in an approved manner. All paper and printouts are shredded using a cross-cut shredder as are CD's and DVD's. Other media, discs, are overwritten completely with "010" strings or physically destroyed prior to being reused or disposed of.	
NSS	Education		If information sharing is expected, provide a full description of the relationship between yourself and the relevant third parties and the proposed arrangements and security measures imposed upon the relevant organisation(s).	No information sharing outside of Texuna is expected. The data remains the property of the Council at all times and will be returned at the end of the contract. Copies of data including backups will be securely erased from AWS hosting area using the tools available on AWS described above.	

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NSS	Education		Do you have any agents such as sub-contractors or suppliers who are not directly employed by your organisation who assist in the delivery or support of your product or service who may access our data? For example, is management of your ICT systems outsourced to a third party?	Texuna will manage this project only using Texuna employees.	
NSS	Education		Does your organisation have effective and accurate mechanisms in place to monitor the status of the control measures employed by your sub-contractors?	Where we choose to use them for specialist services.. However, please note that we will not use any subcontractor services for this contract.	
NUIG	Education	Application System	The system should be compatible with Single Sign On (SSO) capabilities, leveraging existing Microsoft Active Directory structures and Shibboleth services which are in place in NUI Galway	Texuna confirms that the proposed application solution will support the following authentication methods which are in use by Texuna clients: Single sign-on (SAML) Shibboleth identity provider LDAP Microsoft Active Directory A local authentication method Role based controls. Single sign-on (SAML) Shibboleth identity provider Two-factor authentication Texuna is an experienced systems integrator. We have configured access and authentication controls with many existing client systems and can assure NUI Galway that the solution will be compatible with their existing implementation.	
NUIG	Education	Application System	All prospect and applicant-facing interfaces must be modern and intuitive providing a good first impression	Texuna solutions are designed for use by large, diverse user communities. Intuitive design is paramount to minimise help and training needs while ensuring the requirements are met. Our skills are in data management, ensuring that the data is complete and that it delivers a coherent story to users in an accessible and flexible way. Simplicity and straightforwardness is key. Our client's design standards and style (existing CSS) are utilised where available to ensure that we conform with complimentary systems at the organisation. Complex workflows are prototyped to ensure usability and language is tested with end users with FAQ's to facilitate help and support.	
NUIG	Education	Application System	Users must be able to use their email to create a login	Access and authentication will use the email address and any login created or maintained will interface with existing access controls at the NUI Galway as detailed in our responses to the technical requirements. The application system requires an email for any applicant so that communications can be maintained so it is vital that this is captured from the start.	
NUIG	Education	Application System	The system must be capable of leveraging existing Microsoft Active Directory structures which are in place in NUI Galway	Many Texuna clients have implemented access and authentication controls using Microsoft Active Directory structures. Our access and authentication module will be integrated with the configuration in place at the University of Galway so that there is seemless interaction. The existing structures will not need to be modified.	
NUIG	Education	Application System	Users must be limited as far as is practical, to the personal data for which they have a business need	Texuna designs solutions with data protection principles at the forefront. By default, personal data is not accessible by users until it is specifically 'switched on' through access permissions for that user type or function. Our guiding principle is that users only have access to data if they have a business need to know.	
NUIG	Education	Application System	The system should be able to restrict which users can export data in bulk.	Export of bulk data typically has an impact on system performance and is restricted to specific internal functional roles where the need for bulk export is approved.	
NUIG	Education	Application System	Running reports or exporting data from the system must be audited	Texuna solutions automatically provide a complete audit trail recording as to who accessed the data, when the data was accessed, what data was accessed and what changes were made. Audit, history and versioning features will ensure all users actions are tracked so that there is a complete history of transactions undertaken with data and time recorded.	
NUIG	Education	Application System	The system should offer a cloud hosted system as an option	Texuna is an AWS partner and we offer a cloud hosted fully managed service on AWS as standard and this is allowed for in our pricing. Azure hosting is optional if NUI Galway have a preference for Azure cloud services. Texuna also are able to host on our own private cloud servers or alternatively in-house in NUI Galway require this option.	
NUIG	Education	Application System	Data must be maintained and stored within the EU to ensure data protection directives and General Data Protection Regulations (GDPR) must be adhered to. Data must not be transmitted or transferred outside the EU. NOTE: Tenderers whose proposed solution does not meet this requirement will be eliminated from this competition.	Texuna will ensure that the NUI Galway solution is hosted exclusively within the EEA region and that data is never transmitted or transferred outside the EU. AWS cloud hosted is organised into mutually exclusive regional centres that are literally only connected to each other by independent internet connections. There is no way for AWS to transfer data between regional centres in different legal jurisdictions around the world without AWS clients actually manually pushing data across regions on their own. This means from a legal perspective that the cloud hosting is isolated. The AWS Dublin-based regional group of data centres is the chosen option for hosting the NUI Galway application system. This so-called EU-West-1 region contains several independent so-called Availability Zones (A-Z), each of which is a world-class data centre. AWS automatically provides for reliable, highly available and robust solutions by automating the replication of data and platform components across multiple A-Z locations (zones) over multiple dedicated AWS fibre network connections. This foundation layer of AWS provides the industry's highest level of availability and lowest time to recover machine instances of any of the global cloud players. It also means that all backup and disaster recovery options can comfortably live within the EU jurisdiction yet remain robust.	

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NUIG	Education	Application System	The system should be compatible with Single Sign On (SSO) capabilities, leveraging existing Microsoft Active Directory structures and Shibboleth services which are in place in NUI Galway	Texuna is an experienced systems integrator. We have configured access and authentication controls with many existing client systems and can assure NUI Galway that the solution will be compatible with their existing implementation.	
NUIG	Education	Application System	Any changes to prospect or applicant data and correspondence with prospects and applicants must be audited	By default, Texuna/AWS designs are based on 'nothing-accessible and everything-auditable'. This makes privacy impact assessment easier, facilitating security by design for GDPR compliance. Security and audit strategies are designed around data and user access. Restrictions are only removed based on actual requirements. Audit, history and versioning features will ensure all previous versions of a record are stored and are available for authorised users to review. This includes data changes as well as key 'events' such as a communication being sent.	
NUIG	Education	Application System	Systems must be available, in a secure format, via web interface, globally from anywhere with an internet connection	Texuna AWS hosting combined with a dedicated URL for the NUI Galway application portal will be available globally, to anyone who has internet access. Texuna use HTTPS encrypted channels for our solution portals and ensure that users are checked via access and authentication protocols to gain access to the solution.	
NUIG	Education	Application System	User interfaces must support responsive web design, i.e., web design which makes web page render well on a variety of devices and window or screen sizes.	Our screens are coded using responsive web design principles to ensure that they are accessible and useable on any device type including mobile devices and laptops. In addition the current range of popular browsers are supported.	
NUIG	Education	Application System	Vendors must be able to demonstrate that they are able to handle predicted volume	Texuna has presented case studies that demonstrate our capability in engineering high transaction, high volume solutions proven in enterprise level use. Our design architectures are robust and capable of expansion so that we size any installation for expected demand but may add capacity cost-effectively by configuring cloud resources only when needed. Our client the NCTL's ITTDMS solution was originally built as a single data collection system. Over the many years we have held this contract the solution has grown to encompass over 10 annual collections with as many user portals and approximately 20 datasets. This has been achieved incrementally and smoothly because we separate the database and application logic across different virtual servers and can add servers to spread any application load.	
NUIG	Education	Application System	Applicants must be able to reset their own password	Ease- of-use requirements for our client systems mandate that the user should be able to self-service whereever possible and this means automated password reset and management. Optionally it is possible to configure 'CAPTCHA' code to eliminate mail bots and validate that the user is a real person.	
NUIG	Education	Application System	Prospects and applicants must be able to login to a secure area online that delivers personalised content that allows them to engage with the university (a "portal")	Portals will be configured for different categories of user, so for example, applicants will have access to the application portal only whereas staff responsible for reviewing and approving applicants will have more wide ranging priviledges via the "back office" portal. Administrator users have the most wide-ranging priviledge to enable the application calendar and other administrative functions to be configured.	
NUIG	Education	Application System	There should be an online resource to allow prospects /applicants to answer the majority of enquires themselves, which could be searched before an enquiry can be submitted	Prospects and Applicants will be assisted throughout the application process as extensively as NUI Galway deem appropriate. Pages of information, FAQ's and other help may be configured within the applicants portal so that these information is exclusive to applicants. This is in addition to the public website and information available for any person enquiring via the NUI Galway website. The application process itself provides in-line help text at every stage of the application.	
NUIG	Education	Application System	Personal data at rest and in transit must be encrypted to international security standards	Texuna has deep encryption experience, understanding that sensitive personal data should not travel outside EEA even in encrypted form. Texuna applies encryption at rest in our AWS cloud hosted solutions, since it is widely supported across AWS. This cloud native implementation greatly reduces performance overhead and minimises the complexity. Data in Transit uses: * Industry standard SSL between an authenticated web browser using the HTTPS protocol (Transport Layer Security - TLS1.2). * A combination of ciphers to ensure keys with cyphers: SHA 256 bit (SHA-2), RSA 4096 bits key, AES256-SHA384. * Further data encryption in transit through AWS cloud hosting for all IaaS and SaaS services. * IPsec (AES-256, SHA-256) from inhouse through AWS Virtual Private Cloud or Virtual Private Network with AWS Direct Connect.	
OBU	Education	Application System	Will Shibboleth be supported	Shibboleth will be supported together with other protocols as described above. Texuna designed, implemented and managed the Department for Education's 'Secure Access' identity managment provider based on the Shibboleth protocol - giving Texuna very deep expertise in this area. OBU's existing reporting tools - SAP BusinessObjects and Qlikview - will be connected to Redshift EDW using a secure SSL connection with restrictions on top of the database, tables and views. End-users access management to BI/reporting tools will be through the LDAP/Active Directory roles & groups and/or Single Sign-On. Single Sign-On can also be implemented with a SAML open source identity provider such as Shibboleth. The following diagram outlines the proposed access for Single Sign-On: <insert diagram >	Pic 19
OBU	Education	Application System	Explain how the incumbent client based SAP BusinessObjects and QlikView could integrate with the cloud based solution	Texuna has worked extensively with SAP Business Objects (SAPBO) with Jisc - migrating the instance to AWS hosting and linking it to Redshift. Texuna can work with SAPBO/Qlik inhouse initially and later migrate them to AWS. Texuna integrates most third party BI tools and clients to Redshift datamarts via native JDBC Driver. We troubleshoot all performance issues ensuring successful outcomes. Latent network performance is the key concern, being governed by the OBU network strategy. Texuna will help OBU to connect to the cloud resources using secure VPN IPSEC connections to AWS. Alternatively, we recommend the AWS Direct Connect service for a dedicated connection to reduce network costs, increase bandwidth throughput, and provide a more consistent network experience, than Internet-based connections - reflecting the approach we took with Jisc. Ideally OBU shall install a Hardware VPN connection between the inhouse datacenter and the AWS Virtual Private Cloud (VPC) to leverage the AWS cloud as an extension of the OBU datacenter. The VPC can be hosted behind the OBU firewall, allowing you to seamlessly move your IT resources like SAPBO and Qlik into the cloud without changing how your users access these sources.	

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OBU	Education	Application System	List your relevant clients available for reference	Jisc - Enterprise Data Warehouse Vibhuti Laroiya Business Intelligence and Datawarehousing Manager Vibhuti.laroiya@jisc.ac.uk Department for Education DfE - IIT DMS Karen Hall Head of Data Exchange - Data Modernisation Division Karen.HALL@education.gov.uk NCTL: Edubase Shaun Osborne DMS Team Leader Teachers Analysis Division Shaun.OSBORNE@education.gov.uk	
OBU	Education	Application System	State any Cloud partner certification and experience (AWS or Microsoft only)	Texuna is both a qualified AWS Consulting Partner (working with Jisc) and an experienced Azure practitioner (working with DfE). Given our client focus and vendor neutrality, we work within client guidelines when designing and architecting solutions. We use vendor neutral open source tools like Terraform, giving cross-cloud portability. As an AWS partner, we commit to maintaining a minimum level of staff certifications as qualified as business experts, solution architects, developers and DevOps administrators. A wide range of our staff carry qualifications. We recommend Amazon Web Services as the cheapest, lowest risk public cloud platform given its "best of breed" features and value for money. With world-class facilities and features AWS have led the Gartner Magic Quadrant continuously over 6 years, growing the gap between it and Azure. AWS better supports free and open source software tools. Azure platform is more restrictive in features and use cases. Texuna has already invested considerably on the AWS platform scripts to bring a 'data–warehouse-in-a-box' solution with automated Business Continuity and Disaster Recovery. This brings certainty, security and value for money to OBU with a tried-and-tested deployment (Infrastructure as Software) for free - benefiting from man-years of work completed on previous projects.	Pic 20
OBU	Education	Application System	State any ETL partner certification and experience	Texuna are 3 years a qualified Pentaho partner and have collaborated with Pentaho and its parent Hitachi on several projects ranging from big data on Hadoop in financial services to standard Pentaho Data Integration with Jisc EDW. Texuna have trained and certified a number of ETL developers as part of the Jisc project and is in the process of achieving Pentaho Architect qualifications. Historically Texuna have used various Microsoft Data Transformation Services (DTS - now SSIS), as well as Alteryx more recently. We have also used other open source tools including SpagoBI and Talend Open Studio. We recommend Pentaho to orchestrate ETL jobs with abstraction layers and to use metadata injection frameworks to simplify management and governance over data - this makes it truly enterprise-ready with great security, flexibility and extensibility. Jisc have also used Pentaho beyond the EDW: * To manage migration of data between legacy onsite and replacement cloud applications * With HESA 'Analytics-Labs' (formerly "Heidi Lab") to provide data to the HeidiPlus service (linking educational, demographic, employability, economic and geospatial datasets). Pentaho was named a 'Visionary' in the 2016 Gartner Magic Quadrant for Business Intelligence and Analytics Platforms, supporting big data and automated analytics.	
UK SBS		Primary Authority Register Beta	Say how you'll meet the buyer's requirements. Include how the approach or solution meets the buyer's organisation or policy goal and user needs. This should cover what you'll build or deliver and how it will continue to be managed.	Texuna is fully GDS-aligned. We partner with both public sector and B2C startups so have a sharp, modern understanding of resilient, futureproof outcomes and user journeys. Our approach includes the following best practices. We will: perform user based testing of stories as they evolve from Alpha to Beta go-live, dive deeper into data rules and mappings to ensure consistency; define an API in YAML and Swagger to iterate the frontend independently of the business rules and backend; use our knowledge of the digital service standard and leverage GDS open source libraries to make long term maintainability easier and vendor independent; work with BEIS to get the Primary Authority service accredited with the GDS, and publish performance statistics to the GDS; work with BEIS on a service launch plan and will draw from our own experience to ensure the Register service is fit for purpose and optimised for service operations; establish and use continuous integration and continuous deployment releases to development/UAT environments and production after go-live; utilise a GIT repository to store code and, optionally, help BEIS to open source this work; provide monitoring of any discovery and alpha Key Performance Indicators (KPIs) to understand how KPIs change due to data or otherwise, and work with BEIS to test the proposed assisted digital support model to ensure that BEIS's proposed approach will meet needs of users.Texuna's BSI-audited quality, service and security standards (ISO9001, ISO20000 and ISO27001) and existing service management facilities provide options and longer term support. This will keep the delivered beta solution up to date with new requests or formal changes in scope, delivering ongoing success in an agile, priority-driven way.	
UK SBS		Primary Authority Register Beta	Describe the approach or methodology you'll take to meet the buyer's requirements. Include how you'll manage the work and maintain quality.	Texuna suggests agile collaboration tools and development workflows including Pivotal Tracker and Slack. We have combined our experience with agile effort and complexity estimations using the t-shirt sizing approach combined with User Story Points system to manage project workloads for just-in-time priority-driven backlogs by product owners and product champions. We follow scrum and use daily standups to collaborate across teams and locations and we do 'show me, don't tell me' presentations at sprint ends and releases for feedback and lessons-learned retrospectives. Texuna will talk to users and stakeholders to build empathy, understand their methods and motivations, and test our assumptions so feedback can be evidenced. We can use the Indeemo.com mobile-based qualitative analysis videos to monitor user behaviour to extend the evaluation of alpha app usability in real life with a bigger audience without incurring the additional cost of a user test lab workgroup. Click analysis and Google Analytics can also be used to ensure that alpha stage KPIs are being met, with evidence collected on usage patterns and behaviour. We propose to work collaboratively in-loco and on an open book basis with full visibility and opportunity for BEIS to participate in code development, testing, deployment and operation if so desired. Our specialised handover workshops with small teams assure knowledge and understanding is transferred and verified to ensure a level of self-sufficiency is left with client staff.	

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UK SBS		Primary Authority Register Beta	Describe the specific technical approach or solution you're proposing.	Texuna sees clear benefits for BEIS to separate frontend and backend to achieve maximum flexibility - this follows the 8 characteristic of aGDS Register. Texuna propose a single page app as set out on GDSplatform development kit- we will extend the GDS GOV.UK platform package for developing citizen and business-facing services. The platform gives full compliance, is easy to upgrade and fast to deploy. It is mobile ready, responsive and adaptive. It can be easily integrated as the backend can supply data to and from other BEIS/3rd party solutions and content management systems via API. Texuna specialises in REST API endpoints. We use YAML-based documentation to automate code generation in a language-independent way. Well-formatted documentation and test stubs are provided through Swagger. Simplified integration code and automatic test scripting gives high quality assurance long term over the API and UI (automated regression test and continuous integration guarantees quality delivery). Performance and penetration testing of the UI and REST API guarantees security and availability of live services. As AWS cloud partners Texuna can provide simplified support and maintenance through infrastructure as code and RDS managed Postgres database service which guarantees security, scalability and high availability. The AWS Gateway API will manage the REST API, providing versioning, staging and control. Open standards and OSS help ensure sustainability long term.	
UK SBS		Primary Authority Register Beta	Describe the team who'll be doing the work and how they'll work together. List the roles, their responsibilities and the number of people you need in each role for each stage of the work	The Texuna team is made of employees from our London and Cork offices, with some offshore backup for testing and engineering to give high quality assurance. All named individuals will be available from time to time on a rotating basis onsite with the BEIS. Team members identified will be engaged for the duration of the build stage, although not all roles may be active on a full-time basis unless needed, given the range of skills involved. Project Director - Patrick Lynch- our CEO will engage with stakeholders and attend key meetings to assure overall success.. Project Manager - Matthew Lilliman- one of our senior and long standing Project Managers experienced in delivering and operating data registry solutions at both DfE and NCTL. Analyst/researcher - Ankhit Sharma- requirements definition, training and documentation. Technical Architect - Roman Pavlov - to ensure that the most appropriate architecture and infrastructure decisions are taken. Service Manager - Paul Collins- to manage longer term support and deal with any requests according to defined SLAs. UI/UX Designer - Noelle Corkeryto ensure that the user journey stays foremost in our mind, and be responsible for coordinating user research and feedback. Developers- Team of 4 developers in total including one senior development lead,Kirill Feoktistov. QA/testers-Team of 2 testers to create automated regression test scripts and full QA process. Dev/Ops and SysAdmins- BothNick ZabavinandVictor Turbinskywill manage permissions, software defined networks and build infrastructure as code to automate deployments. Other unnamed staff may be engaged on an 'as needs' basis depending on roles and priorities.	
UK SBS		Primary Authority Register Beta	Say when you can deliver the work. Break down the work into phases and say when each phase will be done.	Texuna propose a 20 week project. A parallel Discovery workstream during weeks 1-8 will complete analysis, notably: Security of communications User management Historic data migration We deliver in sprints of 1 or 2 week duration (depending on BEIS preferences). User testing with feedback and refinement will be conducted following Sprints. Texuna propose these sprint epics (in weeks for simplicity): Weeks 1-2: mobilisation and team orientation; establish project controls; configure the test and development environments; test data migration plans. Weeks 3-4: EPIC 0: API development; EPIC 1 - Search and find a business - logic for this user story will be used in other user journey epics Weeks 5-7: EPIC 2 - Registration Registration will require data validation, edit and update methods. Relative complexity of processes requires 3 sprints - need to extend data interdependencies and business rules. Weeks 8-9: EPIC 3 - Find Assured advice System navigation to identify and correlate advice Weeks 10-11: EPIC 4 - Security and Data migration Implementation of any additional security requirements identified in Discovery Data migration preparation and test Weeks 12-13: EPIC 5: User Management Verification that the User Groups and Roles are fully implemented Edit and archive users Password management User data migration preparation Weeks 14-15: HANDOVER: wrap-up / completion Fromweek 16-20the following activities will be scheduled: Penetration testing IT Healthcheck Service assessment Final User Acceptance Testing and issue resolution Accessibility testing/verification Documentation Data migration Transition preparation Completion training Confirm backlog items, prioritisation and long term support model. Texuna recognise that the beta service is only the launch of a Minimum Viable Product for the service (albeit enterprise-class and security-hardened). Texuna expect a number of stories will remain in the project backlog in a prioritised order, and will work with BEIS to ensure there is a plan of work and resource available to continue to deal with the highest priority items and feedback post-launch. Texuna believe project contingency is best invested in a longer term support and maintenance service to manage a prioritised backlog with a guaranteed minimum resource subsequent to the beta go-live.	
UK SBS		Primary Authority Register Beta	Price	Texuna can provide a time and materials and/or capped time and materials based on a blended day rate of GBP600. This also applies to 'out-of-scope' work. However Texuna are happy to commit to a fixed price contract subject to an early review of data dependencies and business rule complexity. A fixed price contract is based on the following: Blended day rate of GBP600. Approx 10 Full Time Equivalents for 22 days per month for 5 months. Rotating presence of approx 3 individuals at BEIS site throughout the project. Total 1,100 days effort at a GBP660,000 fixed implementation price to post go-live 24 months full SaaS style AWS hosting, support & maintenance service with full Business Continuity and Disaster Recovery GBP5,000 per month 24 month development and deployment resource to maintain backlog with guaranteed 10 development/test days per month (i.e. GBP500 day rate). GBP5,000 per month Total fixed price GBP900,000 over 29 months (i.e. 660,000 + 120,000 + 120,000) Texuna believe that this fixed price brings certainty, long term success and value for money to BEIS without the need to worry about scope changes as priorities are managed through agile backlog.	

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UK SBS		Primary Authority Register Beta	Value for money	Texuna want to bring long term sustainability to assure success with an ongoing development and support role to manage an agile backlog of priorities. We give a fixed cost for the initial beta go-live phase, and turn the contingency time and budget into a longer term support and maintenance agreement so the backlog remains under control. More of the project budget is available longer term to address improvements from lessons learned and scope changes over time. Our proposal highlights are: Texuna's focus on data and the quality of the proposed business logic and workflow based on our experience of operating data registries is fundamental to realising savings and optimisation of the services. The cloud-based Rest API approach incorporates future changes to the GDS platform framework which GDS suggest is a far superior strategy to a customised CMS solution like Drupal. A REST API interface reduces implementation risks and opens long term integration with other BEIS and 3rd party services. Reusing GDS libraries and open source software will greatly enhance flexibility, quality assurance and time to release code, and brings GDS recognition.	
UK SBS		Primary Authority Register Beta	Risks and dependencies	Risks: Discovery documentation may not identify all the complexities required in the backoffice data schema and/or business rule configuration. A formal change control process may be needed due to business priority changes or post-election government policy. Current project timelines have no contingency for go-live. Texuna may add reasonable resources to manage slippage. Dependencies Beta is of defined duration with delivery over the summer holiday period. Access to BEIS staff may be more restricted. Historic data quality issues can be expected - support from BEIS required to make practical decisions on data migration. Complex business rules may arise with data dependencies and mappings to be created for full automation. This may require significant effort from BEIS and delays may result as rules are defined. GDS may impose service reviews and restrictions, or delay domain launch, if not engaged early.	
UK SBS		Primary Authority Register Beta	deliver digital services that meet the GDS Digital Service Standard criteria and pass GDS service assessments and how this will ensure the successful delivery of this project	Texuna collaborate with GDS on the DfE Edubase replacement to pragmatically assure deliveries and successes. We have worked with Digital by Default and Digital Service Standards for many successful public sector projects. Our startups and consumer apps bring 100% user-centered and rapidly-prototyped agile approach to our deliveries. E.g. Indeemo.com is a qualitative research selfie video startup which we can use to research UI and UX. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We have used open source software components extensively for over a decade with extensive data and dashboard reporting expertise.	
UK SBS		Primary Authority Register Beta	assess legacy systems, develop migration strategies and migrate data to new digital systems and how this will ensure the successful delivery of this project	Texuna work with ETL tools and Data Warehouses (e.g. Jisc - assessing, integrating and migrating 140+ feeds into a conformed enterprise data model, as well as re-supplying customer-oriented data through a new 'MyJisc' portal). We have extensive integration and API experience (E.g.Edubase) as well as migrating data from historic sytems of record to new cloud-based replacement systems. Replacement systems are often bespoke in nature, so during migration we build test straps that SQL-based sanity checks to ensure that replicated data that is migrated is absolutely assured to be identical to original source data irrespective of format or schema.	
UK SBS		Primary Authority Register Beta	develop prototypes (wire frames/coded prototypes/etc.) iteratively via user testing/research and how this will ensure the successful delivery of this project	Texuna have worked with GDS team in an interative style to join front end prototypes with backend systems via pre-specified API definitions. Texuna also have agile prototpying experience with startup companies in the B2C space on video, mobile, and web technologies. These rely heavily on regular prototpying and continuous integration and deployment of code to shared repositories to ensure real customers and end users can give immediate feedback on the UI/UX and customer journey. Texuna has worked with tools such as Balsamiq, GetArbor, InvisionApp, Pressie etc. to construct quick wireframes and elicit feedback across stakeholders, providing evidence to inform UI/UX.	
UK SBS		Primary Authority Register Beta	develop digital services using agile methodologies and how this will ensure the successful delivery of this project	Texuna have worked with the agile methodology for sprints and for project management over the last 3 years, coverting a previously waterfall style with tradtional tools to an interactive, shared development methodology with visual tools and workgroup techniques. Texuna work with modern collaboration tools and development workflows including Pivotal Tracker and Slack, and have a fully continuous integration and deployment approach working with cloud based and software defined infrastructure and networks. We use daily standups and scrums to collaborate across teams and locations and we do 'show me, don't tell me' presentations at sprint ends for feedback and lessons-learned retrospectives.	
UK SBS		Primary Authority Register Beta	develop production ready code for private/public Beta releases from Discovery and Alpha outputs (e.g. low-fi/hi-fi prototypes) and how this will ensure the successful delivery of this project	Texuna use test driven development from the very begining of projects to set early baselines for deployable code. We automatically run regression testing against all commits that are integrated and releases for deployment to dev/test/prod environments. This happens from the earliest code versions and test versions typically managed through GIT, with unit and integration tests included in the test suite. We can put this rigour in place to wrap up discovery or alpha code and ready it for continuous deployment with high confidence. All bugs are managed in a formal ticketing process and lessons learned incorporated into automated tests.	
UK SBS		Primary Authority Register Beta	prioritise key content and features using metrics, analytics, and user feedback and how this will ensure the successful delivery of this project	Early on we engage multiple stakeholders with 'show me don't tell me' artefacts to to capture and measure real feedback on wireframes. We use Indeemo.com mobile-based qualitiative analysis videos to monitor user behaviour when using alpha apps in real life with a bigger audience. We talk to users and build empathy to understand their methods and motivations, and test our assumptions so feedback can be evidenced. Texuna use click analysis and google analytics to ensure that usage patterns and behavour can be used to collect evidence to inform customer journey decisions once beta releases are in production.	
UK SBS		Primary Authority Register Beta	prioritise product and programme delivery using effective estimation and sizing techniques and how this will ensure the successful delivery of this project	Texuna have 17 years experience in estimating and building complex projects and programmes of work to deliver fixed-price workstreams. We have combined this experience with agile effort and complexity estimations using the t-shirt sizing approach combined with User Story Points system to manage project workloads for just-in-time priority-drive backlogs by product owners and product champions. We have also worked in multi-vendor teams and multi-stack technologies and are comfortable judging the added complexity this entails so that it is accounted for in delivering a broad programme of change management over extended periods.	
UK SBS		Primary Authority Register Beta	design and build services which meet user needs, follow GDS design patterns, and meet accessibility standards and how this will ensure the successful delivery of this project	Having worked in central government public sector for over 12 years Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. For example, early versions of the task list pattern were used in by NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life Long Learning UK. All Texuna user facing deployments are at least WC3 AA level accessible and have been independently tested and verified.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
UK SBS		Primary Authority Register Beta	implement 3rd party APIs and how this will ensure the successful delivery of this project	Texuna have worked with GDS secifications over the last 6 months to deliver a fully functioning API to join back end systems with a new front end that is aligned with GDS design patterns and standard. Texuna specialises in REST API endpoints. We use YAML-based documentation to automate code generation in a language independent way. This streamlines development with well formatted documentation and test stubs provided through Swagger. Simplfied integration code and automatic test scripting gives high quality assurance long term over the REST API. Perfomance and penetration testing of REST API guarantees security and avaliablity of live services.	
UK SBS		Primary Authority Register Beta	deliver digital services from Discovery to Live, involving retirement of legacy services and how this will ensure the successful delivery of this project	With deep experience linking authentication and access control systems and legacy systems/databases, Texuna is expert in joining fast moving end user expectations with more slowly responding legacy backends. We also use tools like Ansible/Terraform/Puppet to migrate to altenative infrastructure on AWS/Azure. We have managed Secure Access migration from private cloud (Eduserv) to AWS, and Edubase from colocation to Azure, working with multiple 3rd parties with zero downtime. Pre-planning migration data quality and sanity checks are put in place to ensure that legacy data behaves as expected before and after redeployment. We have also migrated database stacks and upgrade software versions.	
UK SBS		Primary Authority Register Beta	upskill client staff and how this will ensure the successful delivery of this project	Texuna often work with public sector first-timers to migrate them to agile-driven, user-focused and priority-driven project management, requirements prototyping and sprinting code deployement. We work collaboratively in-loco and on an open book basis so they have full visibility and opportunity to participate in code development, testing, deployment and operation. Our specialised handover workshops with small teams assure knowledge and understanding is transferred and verified. We provide sufficient video and wiki documentation to ensure a level of self-sufficiency is left with client staff. Open standards and OSS help ensure sustainability long term, and Texuna can also provide support services with SLA.	
University of Sheffield	Education	Middleware	The system shall be supported on VMware vSphere version 6 and supported on either RedHat RHEL 7 or Windows Server 2012 or above. Please also detail any additional infrastructure requirements and dependencies associated with implementing the solution on the University's chosen infrastructure.	Installation, maintenance and use will fully comply with the University on premise strategy. The Pentaho server software is hardware-independent and fully compliant with virtualisation technology (VMware vSphere version 6) and the guest operating systems required (RedHat RHEL 7 or Windows Server 2012+). Pentaho Data Integration Server (PDI) runs on any server-class computer that complies with the following minimum specifications: Hardware—64 bit Processor: Intel EM64T or AMD64 Dual-Core RAM: 8 GB with 4 GB dedicated to Pentaho servers Disk Space: 20 GB free after installation Operating System—64 bit Microsoft Windows 2008 Server R2 & 2012 Server R2 CentOS 6 & 7 Red Hat Enterprise 6 & 7 Ubuntu Server 14.04 LTS & 16.04 LTS SUSE Linux SLES 11 (SP3+) Workstation (for job designer tool): Hardware—64 bit Processors: Intel EM64T or AMD64 Dual-Core, or Apple Macintosh Dual-Core RAM: 2 GB RAM for design tools (PDI server requires 2 GB dedicated RAM) Disk Space: 2 GB free after installation Minimum Screen Size: 1280 x 960 Operating System—64 bit Microsoft Windows 7, 8, & 10 Ubuntu Desktop 14.04 LTS & 16.04 OS X 10.11 & 10.12	
University of Sheffield	Education	Middleware	Please list the communication protocols that your solution can support to interconnect service requesters and providers. Your solution should be capable of supporting at least the following protocols: File Transfer Protocols (FTP, SFTP, SCP) HTTP/S TCP/IP	Pentaho Data Integration (PDI) supports File Transfer Protocols (FTP, SFTP, SCP) and HTTP/S TCP/IP protocols out of the box as follows: - FTP - Standard jobs to upload, download, delete files - SFTP - Standard jobs to upload, download, delete files - HTTP/HTTPS - Out-of- the-box Client, Post, file download and file upload components. - IMAP/POP3 - World standard protocols for Emails processing RSS - Protocol to read/publish feeds from/to external sources The following, less frequently used protocols, are also provided out of the box: Telnet/SNMP/Syslog/Ping PDI has Socket Reader and Writer connectors that allows integration with any custom build solutions. PDI has a large and very active community that contributes plug-ins that can be added to server and used as any other out of the box component.	
University of Sheffield	Education	Middleware	Please describe the service protocols supported by your solution. It should be capable of supporting at least SOAP and RESTful services.	PDI provides excellent support for integration via Web Services, covering both REST/JSON and SOAP/XML to consume 3rd party APIs. This is an important consideration for University of Sheffield with its many partners in the education sector - this agnostic approach allows University of Sheffield to target any technology stack. SOAP - Out-of- the-box connector to handle SOAP WSDL requests / responses. PDI job component to check web-service is available. REST - consume RESTful services via built-in PDI Carte web-server to expose REST API to external systems, and use REST Client Transformation component. Texuna confirms that PDI provides ability to connect directly to all University of Sheffield data sources listed in University of Sheffield Technical Environment (as per Appendix C), regardless of their format or technology, including cloud systems where direct database access is not possible. It literally has hundreds of built-in components for connections, transformations and controls and is widely used by developers in the open source community in particular. It provides the ability to make direct connections to all the listed University of Sheffield data sources, regardless of source system format or technology. This includes cloud systems where direct database access is not even possible.	

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	Sector	Solution	Question	Template Response	Picture number
University of Sheffield	Education	Middleware	Please describe the messaging protocol support provided by your solution. e.g. AMQP, JMS, STOMP	Pentaho Data Integration (PDI) provides out of the box support for any JMS messaging. PDI provides pre-built plug-in components for JMS producers and consumers that are able to work with any JSM compliant provider. All that is needed is a connection string (JNDI) and topic name to launch the messaging service. Consumer and Producer steps are provided for ETL jobs. Furthermore, native support is provided out-of- the-box on the PDI Enterprise Edition for: - Apache ActiveMQ - IBM Websphere MQ	
University of Sheffield	Education	Middleware	Please highlight the ability to support asynchronous messaging, store and hold/pause flows if endpoints are unavailable	ETL and enterprise service bus functionality have overlapped in recent years, and the decision to select one over the other isn't always clear. In general, ESB topology arose from investment banking where a need for the continuous delivery of pricing data to multiple independent trading systems in a high-speed manner was essential. ETL has come about from data integration, cleansing and migration from multiple heterogeneous sources. Today, architectural decisions will dictate the choice of ETL, EBS or both systems as meeting required needs. Texuna feel the PDI ETL tool can help meet both needs, because of its ability to provide seamless, native support for Apache open source EBS (ActiveMQ, Mulesoft) and proprietary EBS technologies (e.g. IBM Websphere), as well as general support to integrate with many other alternative ESB vendors - including cloud-native options. Texuna highlight below how we would use PDI and an ESB to meet the University needs: - using EBS to notify of new deltas availability, and ETL to complete a delta update - using EBS to push data changes to ETL jobs on record-by-record basis - configure a watch service to see if expected data deltas have been realised or not - and sending cancel instructions - using EBS to allow offline apps to be updated eventually (eventual consistency) - ETL jobs are "delta-aware" and failure of any specific job over a given schedule (or event driven schedule) will automatically recover because it dynamically calculates record deltas based on the last successful load - not the last scheduled load. Asynchronous processing is a key requirement for the University of Sheffield. The Carte module of PDI is asynchronous by default and supports the REST api out of the box. The Master data app can easily invoke processing by passing data and it receives a job ID. The Job may be monitored for completion from time to time by configuring a status request of the executing job instance. In this way, the Master data app can then process other user requests once the update is registered in PDI. Having a job instance ID returned by PDI allows the status of updates to be verified at any future time. PDI enables different strategies to guarantee durability of any given message and to manage the quality of service. PDI can also be used to persist any message to any other EBS or to an underlying database. The highest level of delivery guarantee (but for very affordable price) may be achieved by using AWS or Azure cloud queues. For example, AWS SQS service or AWS Kinesis service provide excellent speed of message acceptance (terabytes per hour from 100K+ sources) and highest level of message durability in a queue. A cloud service greatly reduces the cost of a scalable and resilient architecture, offering guarantees that messages are not lost and assuring message processing once normal system operation resumes.	
University of Sheffield	Education	Middleware	Please describe the ability of your solution to determine the appropriate end consumer or consumers, based on both pre-configured rules and dynamically created requests.	As outlined in the previous question, a large degree of overlap now exists between ETL and EBS functionality. Below Texuna shows how PDI together with native support for ActiveMQ will best meet the University's needs: PDI will permit the selection of relevant consumers within jobs based on: - set rules that can be pre-configured in metadata - newly created jobs and rules - runtime metadata injection from the PDI database store of metadata means that dynamically created metadata is available to be passed into ETL jobs. PDI is very powerful ETL tool that helps configure workflow of any complexity. New jobs and transformations may be created in the desktop client Spoon and uploaded to the Kettle server in a few clicks. They start processing data immediately, restart of server is not required. Texuna's framework allows meta data driven routing. Rules may be specified in the database and data processing is performed according to these dynamic rules.	
University of Sheffield	Education	Middleware	Please describe the ability of your solution to support guaranteed delivery of messages including the scenario that the receiver is offline.	Texuna's Framework has built in capabilities to track changes in source RDBMS systems even if tables do not have timestamp field reporting latest updates. Sophisticated hash algorithms over business keys and data keys allow delta changes to be calculated for any period of time. Insert, update and delete operations are supported. Metadata driven, boiler plate code further simplifies development by allowing simple configuration of sources for ETL jobs. Where further assurance is required, Texuna will show how to set these jobs to take an EBS such as ActiveMQ or MuleSoft as the supply source for event driven data and further transform the data on the way to its destination within a larger well-architected metadata driven framework for orchestrating jobs.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
University of Sheffield	Education	Middleware	Please highlight how your solution supports common data formats e.g. JSON, XML, flat files, JDBC/ODBC connectivity.	Texuna propose the Pentaho Data Integration (PDI) platform as the platform for the optimal solution to meet University of Sheffied needs. PDI remains a highly innovative platform, for example providing Hadoop connectors to to manage Big Data workloads since 2010, isolating enterprise jobs from rapidly updating ecosystem. It literally has hundreds of built-in components for connections, transformations and controls and is widely used by developers in the open source community in particular. It provides the ability to make direct connections to all the listed University of Sheffield data sources, regardless of source system format or technology. This includes cloud systems where direct database access is not even possible. The next section provides comments on each of the University of Sheffield source systems. PDI offers broad connectivity to a diverse range of popular data platforms including: 1. Structured databases, 2. Unstructured file systems and 3. Semi-structured data sources. Some key native plug-ins include: ● Enterprise apps: SAP ● Relational databases: Oracle, DB2, MySQL, SQL Server ● Cloud/SaaS: Salesforce, Amazon Web Services ● File systems: XML, Excel, flat files and web services /REST APIs ● Hadoop/Hive: Cloudera, HortonWorks, MapR ● NoSQL: MongoDB, Cassandra, HBase ● Analytic tools: Vertica, Greenplum, Teradata ODBC - Out-of-the-box native connectors to approx. 40 database engines JDBC - Out-of-the-box native connectors to approx. 40 database engines SOAP - Out-of-the-box connector to handle SOAP WSDL requests / responses. PDI job component to check web-service is available. REST - consume RESTful services via built-in PDI Carte web-server to expose REST API to external systems, and use REST Client Transformation component. Files - many out-of-the-box components to provide file processing workflow such as: Check file existence; get file names from folder; copy/move/delete, compress/decompress, create folder etc. TXT - Out-of-the-box components to read and write text files. CSV - parsing out-of-the-box: CSV file input; GZIP CSV file input; AWS S3 service XML - job and parsing components provided out-of-the-box: Reading and writing XML files; perform XSL transformations over XML; stream XML files; validating against XSD or DTD schemas to maintain data consistency. JSON - Out-of-the-box components to read and write JSON EXCEL - Microsoft Excel Input/Output/Writer components to work with Excel files Web Service Consumer Connector REST Client transformation step to consume RESTful services. Built-in Carte web-server to expose REST API to external systems. MySQL - Out-of-the-box MySQL bulk uploader or ODBC/JDBC/JNDI connectors available. Oracle DB - Out-of-the-box bulk uploader or OCI connector in addition to standard ODBC/JDBC/JNDI connectors. PostgreSQL - Out-of-the-box PostgreSQL bulk uploader or ODBC/JDBC/JNDI connectors	
University of Sheffield	Education	Middleware	Please highlight the ability of your solution to map/convert data between different source and target data formats. Please also highlight the ability of your solution to transform data represented in one character set into another.	PDI contains hundreds (~800+) of built-in components. There are also a large number of community contributed plugins. Existing steps and components cover all transform functions that the University of Sheffield may have but the ability to reuse Java, JS, Python and other programming languages makes PDI a futureproof solution that will sit well with any set of developer skills. PDI is built on top of one of the most popular open-source ETL server tools (Kettle), and has an optional commercial support subscription for enterprise customers. The PDI desktop client - Spoon - is a designer tool with a nice, traditional, intuitive user interface that hides unnecessary complexity. Yet fundamentally it has plenty options for more sophisticated jobs and extensions to the tool, so that real software engineers can get the most value out of it. It truly is 'enterprise-ready'. The PDI Spoon graphical designer is a free desktop client which includes: ● Intuitive, drag and drop designer. ● Rich library of pre-built components. ● Dynamic transformations, to determine field mappings, validation and enrichment rules using variables. ● Integrated debugger for testing and tuning job execution. ● Intuitive and easy to use scheduler.	
University of Sheffield	Education	Middleware	Please highlight the ability of your integration solution to validate messages. For example, verify that an incoming message contains a well-formed XML document and conforms to an XML schema.

Describe any capability to validate data that is not in XML format. | In addition to the features for transformation (see above question), PDI has many other validation tools. Generic data validation steps help to configure validation rules, supporting data type validation, or given ranges for specific values. There is also a plugin to accept REGEXP for more complex validation rules in a bespoke way to give extensibility. There is also a standard component plugin to validate XML file against XSD schema which guarantees the quality of processed data. Other data input components like JSON, text files, Yaml, have automatic validation on field level built in: each field is defined by type, format, length, precision (for numeric values) etc. | |

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
University of Sheffield	Education	Middleware	Please describe how your solution could serve as the central mechanism for orchestrating services into a single aggregate service enabling the University to continue to get value from legacy systems while providing a better user experience.	The PDI desktop client - Spoon - is a designer tool with a nice (albeit somewhat traditional), intuitive user interface that hides unnecessary complexity. Yet fundamentally it has plenty options for more sophisticated jobs and extensions to the tool, so that real software engineers can get the most value out of it. Jobs and transformations that are created in desktop client are loaded to server directly from client (which is handy for dev environment) or code is committed to Git repository and deployed as part of an automated deployment process. A simple UI is used to create complex workflow, manage the built-in scheduler, use the Carte module that exposes API etc. which all together comprise a very powerful, yet simple and intuitive system to orchestrate services across the University. Each individual workflow may reuse all existing jobs and transformations, process the results of their execution and run specific sub-flows based on the results. PDI makes service orchestration very simple and intuitive, with drag and drop components to execute jobs or any transformation that already exists. Many existing components for application integrations and web-services invocation helps quickly reuse not only internal but external services also.	
University of Sheffield	Education	Middleware	Please describe how your solution can support the development of APIs to make data accessible to different classes of developers and partners while making sure that access to data is appropriately documented, controlled and governed.	Pentaho Data Integration Server component named Kettle provides REST API to invoke any job or transformation. This is a fully functional REST API service provided at no additional cost. The PDI Carte module provides REST API that allows to pass job/transformation name, parameters and run transformation on server. Development of transformation that is used as REST API as simple as setting one tick box. Text, JSON, XML output components have 'Pass output to servlet' checkbox that does all necessary preparation on data. Carte REST API supports execution of long running jobs also, REST API allows to get job execution ID and monitor state of running job. All logging and audit are in place for jobs and transformation, thus guarantee that access to data is properly documented. Carte REST API may be secured with password to restrict access to specific group of users	
University of Sheffield	Education	Middleware	While the solution shall be installed and managed by University staff on the University's infrastructure. The University it is interested to explore the cloud-hosting capability that integration platform vendors can provide. Please describe how can you provide a cloud-hosting environment for the solution.	PDI Server can be deployed on any Infrastructure as a Service(SaaS) solution or private cloud with many provisioning and management tools like CloudFront, Ansible, Terraform etc. Such tools make it easy to migrate workloads and dataloads securely between different inhouse and cloud locations in a predictable manner. PDI Server and components support the ability to be wrapped up within container solutions (aka Docker/Rkt) to achieve easy recovery, deployment options and repeatable infrastructure in minutes. Pentaho's heritage of open architecture and standards make it an ideal solution for embedding into cloud-based applications, aligning with existing enterprise architectures. Texuna has extensive experience in implementing PDI on cloud-hosting environments (whether inhouse or public like AWS, Azure) with various of software deployment and management tools. The public cloud infrastructure offers many optimisations and efficiencies compared to on-premise because of standardised hardware and network abstraction.	
University of Sheffield	Education	Middleware	To increase efficiency, we are looking for a solution that has a single, consistent graphical development environment encompassing service creation, business rule creation, data transformation, workflow, event processing, and dashboard creation. Please demonstrate the ability of your solution to create integrations using the Graphical User Interface. Please encompass in your demonstration the following: business rule creation, lookups and transformation, workflow, error trapping.	PDI is built on top of one of the most popular open-source ETL server tools (Kettle), and has an optional commercial support subscription for enterprise customers interested in big data solutions. The PDI desktop client - Spoon - is a designer tool with a nice (and standards compliant), intuitive user interface that hides unnecessary complexity. Yet fundamentally it has the options and extensibility to support sophisticated jobs and customisations, so that real software engineers can get the most value out of it as an orchestration tool. The PDI Spoon graphical designer is a free desktop client. It includes: ● Intuitive, drag and drop designer. ● Rich library of pre-built components. ● Dynamic transformations to determine field mappings, validation and enrichment rules using variables. ● Integrated debugger for testing and tuning job execution. ● Intuitive and easy to use scheduler. The GUI left hand menu reveals the extent of features available (Input; Output; Lookup; Transform; Joins; Scripting; Data Warehouse; Mapping; Job; Inline; Experimental; Deprecated), each of which has its own list of detailed functions, connections and components.	

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University of Sheffield	Education	Middleware	Describe the range of adaptors available to integrate with commercial systems including: SAP, Salesforce, Oracle databases.

Where adaptors are not available please describe how the University can build its own custom adapters. | Texuna have proposed the Pentaho Data Integration (PDI) platform as the best ETL tool to meet University of Sheffield needs. PDI is an innovative software platform, providing connectors to Hadoop to manage Big Data workloads since 2010. It literally has hundreds of built-in components for connections, transformations and controls and is widely used by developers in the open source community in particular. It provides the ability to make direct connections to all the listed University of Sheffield data sources, regardless of source system format or technology. This includes cloud systems where direct database access is not even possible. The next section provides comments on each of the University of Sheffield source systems.
PDI offers broad connectivity to a diverse range of popular data platforms including:
1. Structured databases,
2. Unstructured file systems and
3. Semi-structured data sources.
Some key native plug-ins include:
● Enterprise apps: SAP
● Relational databases: Oracle, DB2, MySQL, SQL Server
● Cloud/SaaS: Salesforce, Amazon Web Services
● File systems: XML, Excel, flat files and web services /REST APIs
● Hadoop/Hive: Cloudera, HortonWorks, MapR
● NoSQL: MongoDB, Cassandra, HBase
● Analytic tools: Vertica, Greenplum, Teradata
To increase the performance of data extraction, loading and delivery processes, Pentaho offers the following data delivery capabilities:
● Native connectivity and bulk-loading to most common data sources
● Multi-dimensional format for analytics
● Real-time data services for operational 3rd party applications
PDI provides excellent support for integration via Web Services, covering both REST/JSON and SOAP/XML to consume 3rd party APIs. This is an important consideration for University of Sheffield with its many partners in the education sector - this agnostic approach allows University of Sheffield to target any technology stack.
Integration via Web Services, covering both REST/JSON and SOAP/XML, altogether with ability to use Scripting in Java/JavaScript and plug-ins system guaranties that University of Sheffield will be able to integrate with all external source that are currently in use and those that will be taken on board in future
Texuna's Framework has built in capabilities to track changes in source RDBMS systems even if tables do not have timestamp field reporting latest updates. Clever bussiness key and data keys hash algorithm allow to calculate changes delta for any period of time. Insert, update and delete opertaion are supported. This boiler plate code simplifies development with just configuration. | |
| University of Sheffield | Education | Middleware | Please describe any capability to develop integrations in or interoperate with other development environments. e.g. Java, .net, Python, Ruby, PHP. | Pentaho Data Integration (PDI) aims to provide maximum flexibility and to be future proof. It aims to reuse as much existing code as possible and the plugin system enables users to extend the current set of hundreds of default steps/components with user-specific functions.
PDI has out of the box support for JavaScript and Java languages. A new Scripting component is currently being tested and is shipped as experimental at the moment. It is compliant with JSR-223 specification and brings support for Ruby, Python, and Groovy languages. Data science languages like Weka, R, and C-Python etc are supported via the data science pack for sophisticated predictive analytics (additional costs apply).
PDI is very extensible and allows creation of plugins. An active community already contributes to the open source project and number of plugins is very large. | |
| University of Sheffield | Education | Middleware | Please describe any capability in your product to reuse integration code or adapters. | A well architected PDI project ensures zero business logic duplication. All Jobs and Transformation may be reused from other Jobs and Transformations. If integration code or adapters already exist or are developed in-house they are available for re-use by any ETL developer. If a Git repository is used on a project, commit of job or transformation to repository makes them available instantly. No language or source knowledge is required to reuse these adapters.
PDI aims to provide maximum flexibility and be future proof. It aims to reuse as much existing code as possible and plug system enforce users to extend current set of hundreds default steps/components with user specific functions.
PDI has out of the box support for JavaScript and Java languages. New Scripting component is being tested and is shipped as experimental at the moment. It is compliant with JSR-223 specification and brings support for Ruby, Python, Groovy languages.
PDI is very extensible and allows creation of plugins. Active community already contributed to project and number of plugins is very large | |

					Picture number
Intro	*Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.*				

	Sector	Solution	Question	Template Response	Picture number
University of Sheffield	Education	Middleware	Please describe any capability in your product to test integrations, including: A local unit and scenario-level test and debug Distributed scenario testing and debugging load/stress testing, using stored scripts, simulating volume (normal, spike, low), and message payload Ability to mock end-points where test environments for external systems are not available.	Texuna will help the University of Sheffield to focus on verifying data and transformation execution on each layer (pre-mirror/mirror/stage/master/ods) during ETL testing. The process could be: 1. Restore the database to the desired state; 2. Depending on type of testing (unit or integration): unit: insert test data from excel file to lowest layer in database object (pre-mirror or mirror); integration: insert test data from excel file to external resource like email/file in s3 bucket/external database. 3. Execute ETL transformation using Kettle for extracting data from pre-mirror/mirror (in case of unit) or from external resource (in case of integration test) to the next layer - verify ETL transformation: - Pass: transformation executed without error (e.g. no unexpected error, null pointer exception, etc.) - Fail: transformation executed with error - send to testing report. 4. Execute sql-query for pre-mirror/mirror. Compare sql-query response with expected data (""golden data"") Pass: both files are the same Fail: discrepancy found. Highlight in testing report (e.g. like diff-style). 5. Repeat steps 3 and 4 for extracting/verifying data from mirror to stage, from stage to master/ods. 6. Execute ETL transformation for replication and verifying data. Texuna will provide an ETL testing framework which will provide the following benefits: 1. Quick test creation without need for programming skills. You just need to describe the test case in YAML and prepare test data in Excel. A single QA engineer from Texuna created 1600+ unit and integration tests during a recent 9 month project. 2. Framework provides high performance for tests. 3. Functionality can easily expand due to a modular approach that allows many new modules to be created and added over time. 4. Easy to integrate with popular Continuous Integration Tools. 5. The Framework can be deployed in any environment: Unix/Linux, Windows, Mac OS. 6. The Framework works with any source: databases, AWS S3 files, emails etc. Texuna will establish the test framework based on common best of breed technologies, each of which has large communities and excellent support from project sponsors: 1. Py.test testing framework - py.test https://docs.pytest.org/en/latest/ 2. Allure reporting framework - http://allure.qatools.ru/ 3. Jenkins Continuous integration framework - https://jenkins.io 4. YAML for description of test cases - http://yaml.org/ For creation of new tests you just to need: 1) create tests cases config; 2) create excel file with test data. Debug: py.test allows to debug test scripts in best traditions of high-level languages like: a) set breakpoint; b) inspection of stack frames; c) source code listing and etc. Testing report: There are lots of cool testing frameworks for different programming languages. Unfortunately, only few of them can provide good representation of test execution output. We are working on Allure - an open-source framework designed to create test execution reports clear to everyone in the team. Continuous integration: For automated execution of all ETL tests we use Jenkins. This tool allows us to: 1) pull all requests; 2) execute all tests according to a schedule; 3) calculate statistics after test's execution; 4) send email with count of passed/failed tests; 5) store testing report for 2 weeks.	

					Picture number

	Sector	Solution	Question	Template Response	Picture number
University of Sheffield	Education	Middleware	Please highlight your product's ability to package integrations and externalize configuration to facilitate the automation of deployment to different environments e.g. Development, Test, Production. Please describe any capability to support multiple versions of the same integration/API for example where clients may be transitioning between the old and new versions.	Jobs can be loaded to the server directly from the desktop designer client (useful within a developer environment) or code can be committed directly to a Git repository and deployed as part of an automated process. PDI server can use configuration files to prevent code duplication. Texuna typically stores sharable parameters such as connection settings, URLs, file locations etc. which can be reused in several places in the configuration file. This approach has many benefits: 1) No code duplicity. I.E. single point of definition for every relevant parameter, greatly simplifying any changes (e.g. host name updates). Otherwise we should have update all places where the parameter was used. 2) All environments use the same code. Environment differences are specified in a single place in the PDI configuration file. E.g. point Development and Test environments to different databases via parameter definition without changing any code. 3) Sensitive information in the configuration file such as passwords can be encrypted. Texuna proposes using Git as a version control system. The biggest advantage of Git is its powerful branching functionality. Typically Texuna specify 3 main branches: - DEV - main branch for development. Deployed on Development environment - UAT - branch for test on UAT environment. Deployed on Test environment - Master - branch for Production release. Deployed on Production environment. Texuna will provide a single-click solution to the University of Sheffield to simplify deployment of PDI objects. This has many benefits: 1) Simplicity - one-click deployment. 2) Atomacity: existing code is completely replaced with the latest version. However, it is also possible to update only subsets of the code (useful if a project contains sub-projects because they can be updated independently). 3) Flexibility: the code is deployed from the desired branch based on a passed parameter (DEV, UAT, Master).	
University of Sheffield	Education	Middleware	Please describe how integration code, artefacts and configuration may be versioned and ideally stored in common version control systems. e.g. Git.	Pentaho objects (jobs and transformations) are stored in XML format. Text files can be easily versioned by any version control system. Developers and other people who have access to the repository will be able to read, review, track history of every file in the project. Texuna recommends using Git as a de-facto industrial standard. The biggest advantage of Git is powerful branching functionality. The common approach is using 3 main branches: develop - main branch for development. All new features are stored here. UAT - branch for test on UAT environment. After UAT scope fixed, develop branch sould be merged into UAT branch. master - branch for Production release. After testing process finished on UAT environment branch UAT should be merged into branch master. Also developers are welcome to create as many branches as they need if they feel that using separate branch brings benefit. Every environment uses code from different branch: Development uses code from develop branch, Test - from UAT and Production - from master. The automatic deployment tool developed by Texuna allows deployment of the code from any branch in one click.	
University of Sheffield	Education	Middleware	Please highlight any capability that facilitates easily maintainable documentation of integrations and APIs to be produced and made available to developers.	Texuna and PDI facilitates easily maintainable documentation such as: 1) Notes in PDI objects - explanatory notes can be attached to jobs and transformations (equivalent to comments in source code). 2) Automated metadata publication - an open-source wiki engine such as 'MediaWiki' can be used to keep and maintain documentation in an automatically updated way. Mediawiki has many benefits: a) Free and open-source b) Actively developed c) Functionality can be expanded by plugins d) It provides REST API, meaning wiki pages can be updated directly via PDI e) Flexible role management (e.g. for viewing, editing, removing pages) Scheduled Pentaho jobs can create or update the wiki page documentation as follows: 2.1) Load master data from database tables (ideal for mapping and reference tables - typically with low row count but business analysts always want to quickly reference them without using SQL). Wiki editors can make comments for every row of data from a table - these are automatically preserved even as the underlying table data is refreshed on a schedule. 2.2) Loading table descriptions - PDI can generate metadata for all tables or previously defined ones. Table metadata is published to a wiki page where each field in the table has a separate section on the page. A user can add any description at the top of the page (i.e. a table description) and under any give section (i.e. a table field description). These notes are also maintained independently of each scheduled refresh of the publication. If a field is removed from a table, it will not be removed from the wiki page, but rather moved under a 'Deprecated' section - again with the ability to add independent user-maintained descriptions. 3) Data lineage - PDI has functionality to visualize the data flow across PDI transformations and jobs, providing you with valuable insights to help you maintain meaningful data. Once lineage tracking is enabled, PDI can generate a .graphml file every time you run a transformation. This is an XML file which contains a formalised graph description. A wide spectre of graphml diagram viewers exist. Texuna recommends using 'yEd' (https://www.yworks.com/products/yed) - a free graph viewer with the possibility to export graphs into any common image format. Texuna uses this to publish a visual flow any given data element from origin to target, facilitating both data lineage and impact analysis: a) Data lineage provides the ability to discover the origins of an element of data and describes the sequence of jobs and transformations which have occurred up to the point of the request for the lineage information. b) Impact analysis is the reverse flow of information which can be used to trace the use and consumption of a data item, typically for the purpose of managing change or assessing and auditing access.	

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University of Sheffield	Education	Middleware	Please highlight how the solution can monitor the transaction flows and performance of integrations and present monitoring information in graphical user environment and integrate with commercial monitoring tools. How is the solution able to alert administrators of failed transactions?	Texuna's framework was designed with built-in benchmark checks for transactions. All processing is thoroughly audited and logged. Automatic benchmarking is completed each time a transaction is completed. Statistical information is collected and analysed. If the transaction processing time exceeds the average time expected for such a transaction type then a delta% warning is registered. If the amount or quality of data does not meet expectations or average quality scores, warnings are registered. Texuna's framework helps to identify and report to system administrators possible issues with source systems if for example the number of transactions from a system is significantly different from average number of transaction for this system. Automated email notifications are sent to administrators which show the number of errors/warnings. Texuna's configurable framework also stores messages that did not pass validation rules and were rejected. It helps analyse issues with data and send change requests to source or target system owners. The framework also stores data in a database and detailed dashboards can easily be created in any BI tool including any free open source BI tool such as the Pentaho BI open source reporting tool.	

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University of Sheffield	Education	Middleware	Please describe how your solution can maintain a record of transactions for audit and error resolution.	PDI provides extensive but easy configurable logging/audit tool for each transformation. Logging is provided for various areas and logs are stored within the EDW database for future audit. Texuna's metadata driven framework brings a disciplined and systematic approach to standardise the transformation audit trail across all jobs. **Transformation Level Logging** ● The batch ID. It's a unique number, increased by one for each run of a transformation. ● The logging channel ID (GUID), can be matched to the logging lineage information. ● The name of the transformation. ● The status of the transformation: start, end and stopped. ● The number of lines read by the specified step. ● The number of lines written by the specified step. ● The number of update statements executed by the specified step. ● The number of lines read from disk or the network by the specified step. This is input from files, databases, etc. ● The number of lines written to disk or the network by the specified step. This is input to files, databases, etc. ● The number of lines rejected with error handling by the specified step. ● The number of errors that occurred. ● The start of the date range for incremental (CDC) data processing. It's the 'end of date range' of the last time this transformation ran correctly. ● The end of the date range for incremental (CDC) data processing. ● The update time of this log record. If the transformation has status 'end' it's the end of the transformation. ● The dependency date: the maximum date calculated by the dependency rules in the transformation settings. ● The replay date is synonym for the start time of the transformation. ● The field that will contain the complete text log of the run. Usually this is a CLOB or (long) TEXT type of field. ● The server that executed this transformation. ● The user that executed this transformation. This is the repository user if available or the OS user otherwise. ● The Client which executed the transformation: Spoon, pan, kitchen, carte. **Transformation Step Level Logging** ● The Batch ID ● The log channel ID ● The logging date ● The name of the transformation ● The name of the step ● The step copy number ● The number of lines read from previous steps ● The number of lines written to following steps ● The number of update statements executed ● The number of lines read from input (file, database, network, ...) by this step ● The number of lines written to output (file, database, network, ...) by this step ● The number of lines rejected by the steps error handling ● The number of errors encountered in this step ● The logging field to store the log lines generated by this step only. **Performance Metrics** ● Batch ID ● A simple sequence number to keep the snapshot records separate (1..N) ● The snapshot date and time ● The name of the transformation for which the performance snapshot was taken ● The name of the step for which the performance snapshot was taken ● The step copy number : 0..(copies-1) ● The number of lines read from previous steps during the interval ● The number of lines written to following steps during the interval ● The number of update statements executed during the interval ● The number of lines read from input (file, database, network, ...) during the interval ● The number of lines written to output (file, database, network, ...) during the interval ● The number of lines rejected by the steps error handling during the interval ● Errors ● The size of the steps input buffer in rows at the time of the snapshot ● The size of the output buffer in rows at the time of the snapshot The above is not a complete list of default Transformation logging provided out-of-the-box. **Job Audit Trail** PDI provides extensive but easily configurable logging/audit tool for each scheduled or manually run job. Logging is provided for various areas and logs are stored in the EDW database for future audit. Logs may be easily reviewed and analysed through the Spoon ETL client. This dedicated component makes the task of auditing simple and intuitive. **Basic Job Metrics Include** ● The batch ID. It's a unique number, increased by one for each run of a job. ● The logging channel ID (GUID), can be matched to the logging lineage information.	

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	Sector	Solution	Question	Template Response	Picture number
University of Sheffield	Education	Middleware	Please describe any capability your solution has that enables failed transactions to be restarted / replayed in case of error. How does your solution ensure any messages in temporary storage are persisted to survive failures in the integration platform?	PDI provides extensive functionality for elegant and sophisticated error processing and notification. User is able to configure specific workflow for data entry that is identified as incorrect. Any common error processing strategy may be applied. Error processing is just as powerful as data processing and allows system administrator notification through email and other channels. Corrective workflow also may be put in place. PDI is very flexible, giving options to discard or process only a single incorrect entry or the option to discard the entire transaction whereby the source system job may be aborted. Using PDI you can apply your own range of strategies to process failed transactions such as: 1. Set number of re-runs for job 2. Set the cursor to latest successful execution, so next execution starts from this point. When a source system pushes updates to PDI, the standard approach would be to persist the update message to PostgreDB as a temporary storage. However, PDI is able to work with all major cloud and on-premise queue providers. It guaranties durable storage of message even if integration platform is turned off or technical failure occurs.	
University of Sheffield	Education	Middleware	Please highlight the ability within your solution to cope with a high level of requests and throughput of messages.	PDI allows you to choose your own strategy to guarantee quality of service. PDI may persist messages to an EBS or to a database for subsequent processing, or to use big data lake approaches based on Hadoop from which subsequent massively parallel processing can take place. For the highest level of delivery guarantee at very affordable prices Texuna recommend using AWS or Azure cloud queues. For example, AWS SQS service or AWS Kinesis service provide excellent speed of message acceptance (terabytes per hour from 100K+ sources) and highest level of message durability in queue. Cloud service greatly reduce the cost of scalable and resilient architecture. In presented scenario, they guarantee that message is not lost and processed. Pentaho Data Integration provides advanced partitioning capabilities that allow to "scale out" Extract, Transform and Load (ETL) deployments instead of "scaling up" on expensive single node machines. It's very convenient to meet the increased data integration loads. PDI clusters have a strong master/slave topology. There is one master in cluster but there can be many slaves. Transformations are partitioned into master/slaves at run time and deployed to all servers in a cluster. Additional nodes can be added to the cluster in minutes using cloud capabilities and provisioning tools.	
University of Sheffield	Education	Middleware	Please describe the capabilities within your solution to provide resilience and high availability of the platform.	PDI Clustering model allows to achieve resilience to the servers in case of service outages or under the high load. The number of nodes can be scaled up to adjust increasing loads. Also, in the event that one Pentaho DI server goes down, service is not interrupted but is instead taken over by a live server to ensure high availability. Load balancers can be configured across the nodes to achieve automatic switching to access live nodes in case of service outage. PDI clustering is a built-in capability of the software - it is not dependent on any particular cloud vendor API/implementation. It can just as easily, and regularly is, deployed on internal dedicated hardware.	
University of Sheffield	Education	Middleware	Please describe how your solution can be scaled to support increasing demands upon the service. How can your solution cope with sudden increases in demand?	PDI allows to use different strategies to guarantee quality of service. PDI may persist message to EBS or to a database. The highest level of delivery gurantee (at a very affordable price) may be achieved by using AWS or Azure cloud queues. For exmaple, AWS SQS service or AWS Kinesis service provide excellent speed of message acceptance (terabytes per hour from 100K+ sources) and highest level of message duralibilty in queue. Use of a secure cloud service greatly reduce the cost of scalable and resilient architecture. In the University of Sheffield scenario, these guarantee that a message is not lost and will be processed. Pentaho Data Integration provides advanced partitioning capabilities that facilitate "scale out" Extract, Transform and Load (ETL) deployments instead of "scaling up" on expensive single node machines. PDI clusters have a strong master/slave topology. There is one master in a cluster but there can be many slaves. Transformations are partitioned into master/slaves at run time and deployed to all servers in a cluster. Additonal nodes can be added to the cluster in minutes using cloud capabilities and provisioning tools. For 100% in-house scalability, PDI multi-core server software leverages each core to run parallel jobs, and the software is easily scalable up to 24 cores per single server machine. Pentaho does not enforce multicore limitations, so temporary increases in the number of cores in use can be a viable approach.	
University of Sheffield	Education	Middleware	Please describe any role-based security support that can be used to govern access to: Monitoring functions and dashboards Manage the lifecycle of integrations Manage server operations	PDI Server supports two different security options: Pentaho Security or advanced security providers, such as LDAP, Single Sign-On, or Microsoft Active Directory so that it can be easily integrated with your identity systems. PDI has an option to control users and roles through Pentaho User Console with a point-and-click user interface. PDI has a reach operation permissions model. The identity groups can be segmented with 7 defined rights: Administer Security, Schedule Content, Read Content, Publish Content, Create Content, Execute, and Manage Data Sources.	
University of Sheffield	Education	Middleware	Please describe any support in your solution for authentication and authorisation protocols e.g. SAML, OAuth that may be used either to protect endpoints within the solution or to access endpoints on other solutions.	Basic HTTP Authentication and Authorisation can be achieved over HTTPS, and using OAuth 1.0 and 2.0 or Shibboleth which Texuna have used extensively with the Department for Education. A standard PDI component for Google Analytics uses OAuth 2.0 authentication. OAuth 1.0 and 2.0 authentication for other secured web-services may be developed through utilisation of standard HTTP or REST and JSON components. Secure FTP can also be used to connect to relevant sources. OAuth protocol is based on HTTP and JSON. PDI provides standard components for authentication. Texuna will reuse existing JavaScript or Java libraries implementing OAuth 1.0 or 2.0 authentication.	
University of Sheffield	Education	Middleware	Please describe how your solution has been developed with security in mind, including the capabilities your solution provides to ensure that data is sent and received securely and communication is only between verified parties?	Texuna strictly suggest secure communications via HTTPS using Secure Sockets Layer (SSL), a cryptographic protocol that is designed to protect against eavesdropping, tampering, and message forgery. The secure communication is provided by using virtual private networks that allow administrators to consolidate network resources and grant several layers of security and resilience: access lists, group policies, availability zones, private and public networks. You can connect your on-premise resources with virtual private cloud using secure IPSec connection. Authentication should be mandatory when the communication channel is established with source or target systems. Pentaho Data Integration supports industry standard authentication protocols like OAuth2 ensuring that communication is only between verified parties.	

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University of Sheffield	Education	Middleware	Please describe the support options you provide for your solution including: Telephone/Web incident support Documentation Community documentation and support Bespoke development/consultancy support Please include a table showing the breakdown of your day rates. Please include details of the location and size of your support and professional services teams.	Texuna operate a helpdesk and support service for its clients. This is governed by an ISO20000-1 process that is certified by BSI. A Service Level Agreement can be put in place to determine incident response times for different priorities, as well as an escalation process to ensure that incidents are handled as expected. Helpdesk service can be accessed via email, chat or phone, and all communications are linked to a call reference number and tracked to maintain service levels. Certain documentation is available from our partner companies such as Pentaho, and any bespoke project work will be documented by Texuna and delivered as part of an overall project engagement. Texuna's day rates are available on the g-cloud listing SFIA rate card. However significant discounts can be made for any large project work. Rates vary from GBP500 a day to GBP1,000 a day, with discounts of up to 40% available for large engagements. Texuna provide professional services from London and from Cork in Ireland with engineering and testing support offshore. Texuna have approx 15 staff available to provide on-site support for UK projects, with an additional 20 staff for remote support. Pentaho also provide their enterprise customers with online and email support for their ETL tool (Data Integrator), with fast SLA response times. Pentaho is part of the Hitachi Data Systems group and has a large professional services team to draw upon in case of additional need. Day rates start from GBP1,000 per person.	
University of Sheffield	Education	Middleware	Please provide details of the technical investments and improvements you are making in your solution that are scheduled for delivery in the next two years.	Texuna is partnered with Pentaho, and Texuna has developed a meta data driven framework to ETL and enterprise data warehouse solutions within software defined infrastructure available on public and private cloud solutions. Texuna are extending this framework to focus exclusively on the Higher Education Institution needs, with integrations being developed for common legacy and future platforms that are relevant to the HEI space in the UK. Pentaho are committed to ETL and big data solutions, and are the lead sponsor for the Weka data science open source project. Pentaho continue to invest aggressively on the integration of cloud applications as well as Hadoop-based big data integration. Pentaho also hosts the largest active community of open source software developers in the ETL and BI space, with regular commits to the code base. Pentaho: www.pentaho.com/	
University of Sheffield	Education	Middleware	Please provide details of the release and update cycle for your solution. Also provide high-level detail of the steps required to perform an upgrade of your solution.	Pentaho release regular updates to their ETL/BI product stack each year to patch bugs and offer new features and functionality, and have been doing so for the last decade with a clear track record. The company has grown steadily to almost 500 strong workforce, and were recently acquired by Hitachi Data Solutions who guarantee the future growth and support of the company and its big data ETL, BI and analytics solutions. Minor updates can be installed to the running Pentaho servers. You need to apply patches to the installation folder and It can be done without major impact on the entire system, but system restart is required. Also, Pentaho allows to upgrade your PDI server between Major releases and provides procedures and scripts to achieve this.	

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University of Sheffield	Education	Middleware	The University is looking to finish implementing the integration tool by latest end of August 2017.

Please outline your detailed approach and methodology for this work package.
Define the deliverables that will be produced and the inputs required from the University.
Specify the timeline required to deliver this work, including the resources required.
Outline your expectations regarding the input, skills and resources required from the University to enable delivery.
Demonstrate your proposed staff/team's experience in delivering work packages of this nature.
Outline the training that would be provided to University staff | Project start = July, go-live Jan 2018.
Texuna understands that delivery window is very small and efficiency of the process is most important to delivery service by end of August 2017 latest. Texuna proposes iterative approach for service delivery. Each iteration may will have few deliverables. Following iterations are proposed:
1. Preparation - 2 weeks
2. Delivery 1 - 2 weeks
3. Delivery 2 - 2 weeks
4. Handover & Support - 2 weeks
Preparation phase includes following activities:
1. Scope the change
2. Identify stakeholders
3. Develop communication and training plans
4. Conduct first trainings for IT and Dev teams
5. Dev/test environment is deployed
Deliverables of Preparation phase:
1. Documented requirements for service delivery
2. Specification for 2-3 quick win integrations
3. RACI matrix for project
4. University Dev team has base knowledge of Pentaho Data Integration
5. University IT team has knowledge of PDI deployment and maintenance
Delivery phases 1 and 2 will include following activities implemented using Agile methodology approach:
1. Implementation of iterations with quick wins systems. Due to short project delivery time it is important to utilise Agile methodology and invite source and target system knowledge holders (Product owners) into development team meetings.
Deliverables:
1. Live environment is deployed
2. 2-3 quick win integration are implemented, tested and deployed on test environment
3. Go live
Handover & Support
1. Completion of manuals and instructions
2. Training and handover sessions for Dev team for maintenance of developed code and establish development processes for dev team of University for Sheffield
3. Training and handover sessions for IT team for maintenance of live environment
4. Bug fixes and help for live environment maintenance during handover
It is expected that teams will be enforced by University of Sheffield staff. It raises awareness of staff in tools and methodology of development and delivery of service and starts handover and training from day one. Texuna provides up to 7 individual people possibly working in parallel, each with some significant time onsite. These staff will not necessarily all work full time.
Our planned resources include
• 1 System Administrator,
• 2 developers,
• 1 Tester,
• 1 Project Manager/Business Analyst,
• 1 Senior Architect
Texuna suggests University of Sheffield to allocate following fulltime resources for project
• 1 System Administrator,
• 2 developers,
• 1 Tester,
• 1 Project Manager/Business Analyst,
Resource will be allocated to delivery streams ensuring that at least one member of Texuna and University of Sheffield staff of the same role participate in delivery.
Texuna staff will work hands-on with the University team in loco in a peer programming style of collaboration in order to make the team self-sufficient. Texuna expect a 90 day parallel working collaboration to be sufficient to get the team up and running. | |

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University of Manchester	Education	Identity and Access Management	The University is keen to explore innovative and cost-effective approaches to the delivery of IdAM services. We would be interested in understanding your experiences with other clients in this area. For context we have an existing complement of some 12,000 staff and 40,000 students. The target landscape includes Active Directory (AAD) and an external directory (see diagrams above).	Texuna has provided bespoke solutions based on open source software to deliver innovative IAM and meet business needs for over 10 years. We have delivered IAM for inhouse services across an international commercial organisation with dozens of offices as well as for the Department for Education (DfE) and Jisc. These services are in active use to control end user access and authentication today to cloud hosted an in-house on-premises systems. We have also invested in and given tech support to several edtech startups, including MOOC Alison.com with over 10 million learners and Edukit.org.uk which supports hundreds of schools. We have also supported Manchester startup Shout-app.com Our projects have demonstrated deep understanding of integration of components in identity solutions, as well as integrating with existing legacy services such as Microsoft Active Directory and OpenLDAP as well as modern standards such as OAuth and OIDC. We can demonstrate our willingness and ability to roll out sophisticated, bespoke systems that meet very specific business needs. We are looking to a passwordless future through the support of self-sovereign identity and U2F/Fido2.0 which is now supported by the major browsers. We are also looking to integrate with blockchain identity options like Civic and uPort. Texuna IAM can be implemented either as an integral component within a solution, or as a separate application to manage access to portfolios of applications and services. It has been developed based on industry standards. Texuna deal with Identity lifecycle management but also access management through groups and permissions features, and data exchange between trusted service providers. Communication of sensitive data is assured via secure SAML assertions, SOAP and RESTful based web-services are utilised and secured via certificate exchange. Traffic between the link endpoints (Texuna IAM and an Application Web Service) is encrypted as part of the communication sessions established before messages are transferred. SSL support alongside other protocols (e.g. Transport Layer Security v1 and above). We have provided brief details of our current client systems in response to question 2 below. Texuna's Secure Access solution for DfE provides a gateway for 10 legacy and behind their departmental firewall through the public internet. This integrated system was rolled-out to all users as a green field project, and now provides over 300,000 successful logins a month. It has already been tested to support a million users with a throughput of approx 100,000 logins per hour.	
University of Manchester	Education	Identity and Access Management	What experience does your company have in implementing IdAM services and solutions? Please provide examples (ideally including Higher Education institutions), and if possible details of clients we could contact to help us understand better the benefits and issues of different approaches. Please include the experiences you have gained in delivering IdAM: on customer premise; from your own data centres/facilities; and by using cloud service providers?	Our understanding and experience is evidenced through the following: * Developed the DfE Identity and Access Management solution for the schools sector (Secure Access). The Texuna IAM product is the gateway interface to 10 legacy services at the Department and Texuna has worked successfully with the suppliers of these services to ensure the success of the integration work. Secure Access provides a high availability Single Sign-On solution to these systems. This has significantly improved ease-of-use, streamlined service and enforced rigorous access control to the legacy services. Standards supported are: Shibboleth, OpenIDConnect, SAML2 and LDAP with both SOAP and RESTful web services. OAUTH2.0 compliance and U2F / FIDO2.0 support is under active development. Secure Access has passed stringent third party penetration tests and has been in live use since 2012, originally with 3 services and now extended to 10 services. * More recently Texuna worked with Jisc to roll out a cloud-based enterprise data warehouse and BI solution with support for a member portal. All the infrastructure was integrated with the in-house Jisc Active Directory to facilitate Single Sign-On to relevant cloud services. Since that time, Texuna have won tenders to supply data warehouse services to several universities in Oxford and London with the same identity single sign-on approach to link cloud services and in-house services. Details available upon request and subject to their permission. * Texuna IAM is currently being integrated into a service that we have developed for the Standards and Testing Agency (STA) that will be run separately from the main DfE installation. * Texuna is engaged in a stealth mode startup (in stealth mode) focused on online identity management using exciting new technologies such as mobile biometrics and Universal 2nd Factor (U2F by the FIDO Alliance) to facilitate an on-ramp to self service identity management, as well as self-sovereign identity through blockchain options such as Civic on Bitcoin network or uPort on the ethereum network. U2F hardware-based asymmetric encryption technologies are being integrated into IAM services. We are also investigating blockchain technologies to support independent audit trail of online activities and behaviours that should be private and distributed rather than shared and centralised by default. We are also working closely with startups such as Profila who are dedicated to allowing users to control their own personal data and govern how it is shared independently of the service provider that needs access to it. DfE contact is Mark Richardson - Mark.Richardson@education.gov.uk Jisc contact is Douglas McLoughlan - Douglas.McLoughlan@jisc.ac.uk	

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	Sector	Solution	Question	Template Response	Picture number
University of Manchester	Education	Identity and Access Management	What do you consider to be the key challenges to the successful implementation of IdAM in Higher Education? We are particularly interested in a green-field approach to Identity Management and the transition approach from as-is to to-be. The preferred Migration Approach is to have tightly defined migration phases (number to be determined) to move application provisioning and authentication off the existing platform to the new platform.	Challenges - Access and Authentication Integration Texuna's experience with Jisc and 2 additional universities in England, as well as our experience with startups such as Alison.com and Edukit.org.uk and Texunasecurity.com (cctv and physical access management via cards and IOT) has taught us many things about the future direction of universities in the education sector. At Jisc, the infrastructure design and application architecture is dictated by the range of source systems and applications as well as decisions about how internal and external users will engage with the final services, whether via internal private networks, secured wifi, or via public networks. The IAM issues that Texuna had to resolve with Jisc included: JISC internal IAM is driven through a series of Active Directory installations. It was stipulated that all cloud infrastructure related to the warehouse project would have to integrate with and be directly controlled via the inhouse ActiveDirectory manager. The AWS Management Console Active Directory federation was requested for better access control over all systems deployed to the AWS infrastructure. Third party cloud SaaS such as Salesforce had to be seamlessly integrated with. Most SaaS have complex permissions access management with different privileges for different parts of each service. A lot of troubleshooting is required to verify the right level of access for the right user-groups. Root or nameless user accounts were disallowed for any user roles, and all access permissions had to be based on Active Directory user groups. Very often, different SaaS API versions behave differently for the same service making integration less predictable. The Solution for the IAM aspects of the Jisc warehouse infrastructure Texuna's approach established a solution based on the following: Identification of all internal infrastructure within the Jisc location networks where the Active Directory servers were located. The establishment of an AWS multiple tiered Virtual Private Cloud (VPC) network infrastructure with locked down ports for different parts of the overall architecture. The creation of multiple hardware backed Virtual Private Network (VPN) tunnels between the JISC corporate network and the AWS VPC network. Each of the newly created Windows servers residing within the AWS VPC were connected to the Active Directory servers in JISC corporate network. Additional reporting services (namely Tableau and SAP Business Objects) were configured for Active Directory authentication for Jisc staff member connection. The AWS Active Directory connector was configured to provide federated sign-in to the AWS Management Console with 2 factor authentication for root and system administrator access. Texuna recommended Pentaho Data Integration tool to manage the data feeds and cleansing from across all source systems including SaaS APIs, through an AWS staging area to feed the warehouse and data marts. A simplistic conceptual overview of the infrastructure is provided below, and would mirror similar concerns that a typical university will face working between different public cloud providers as well as in-house secure networks. The Active Directory Connector on AWS is now used to authenticate users to the AWS Web Console using SSO with 2 factor authentication for administrator access. The AD Connector forwards sign-in requests to the Jisc corporate Active Directory domain controllers for authentication and provides the ability for applications to query the directory for data. Users can now use their existing corporate credentials to log on to access the AWS Management Console and to manage AWS cloud resources such as Amazon EC2 instances or Amazon S3 buckets. Ultimately it was decided to extend Jisc's own on-premises AD DS Installation to the AWS Cloud. Texuna was responsible to ensure the on-promises AD was connected to AWS through an AWS VPC Hardware VPN. This allowed approx 500+ users on the existing Jisc AD infrastructure to access web services related to the warehouse group of services. The final step was to set up and share new permissions groups across the infrastructure. Internal report users are grouped by roles in Tableau. External customers and members authenticate through a separate Drupal LDAP directory as part of a customer portal that lives outside the data warehouse infrastructure (i.e. lives in a 3rd party managed Rackspace cloud infrastructure). The Drupal customer portal is also integrated at a system level so that customer dashboard requests are forwarded to the Tableau reporting cluster which authenticates and validates the request before returning the requested data to the Drupal server. As of today, many systems are already interconnected through the hardware-backed VPN including: Salesforce, Active Directory, Sharepoint, Oracle databases. We used external cloud-based sources such as ElasticSearch on a separate AWS account, Drupal on Rackspace and Episerver (based on MsSQLServer on Azure) that connect separately via firewalls and security groups. Ultimately Texuna's experience with Jisc has shown that we are open and able to transparently evaluate the current 'as-is' situation for a large complex enterprise with multiple legal entities and locations. We are also able to articulate sophisticated options and highlight recommended architecture and infrastructure designs that meet the exact needs of each project situation. We are also able to implement the selected solution to exacting standards with high levels of quality assurance so that the client is confident that data is always protected and end user needs and expectations are met. In the case of the Department for Education Secure Access project, Texuna were able to start the service on an isolated in-house implementation hosted on VMWare in Eduserv (without any actual access to the live production servers or databases) with SSO provided across 3 legacy systems. Over time, additional legacy systems were added with up to 10 services now managed - each with different integration strategies, permissions customisations and SAML payloads of data exchanged. The service was also extended to go from providing a single user per registered school, to provide a delegation facility where each senior school administrator could set up additional school users and manage their permissions accordingly (within the defined policies of the DfE).	

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University of Manchester	Education	Identity and Access Management	The University is keen to transform the IdAM service and is seeking to align to industry best practice and to move to a model based on off the shelf technologies and the costs associated with this approach. As input to the University's planning, please provide indicative costing for a transformation to the Future Architecture in terms of: Initial one-off transition costs to move to the Future Architecture; The licensing model and costs; Any hardware/infrastructure costs; and Ongoing support costs.	Texuna are committed to a partnership approach, and a long term fully managed service so we can provide the highest level of expertise to the university. We are also committed to open standards and approaches, and the portability of solutions so that they can transition between different cloud providers and inhouse infrastructure to eliminate any vendor lock-in. Typical costs might be as follows: One-off transition costs: typical budgets might be in the order of £10-20 thousand per integrated system. Licensing is covered as part of a monthly service fee typically costed per server per month. On a cloud based service for 50 thousand users with enterprise level support and SLA this will start from approx £5,000 per month in total. Alternatively a price per user per month can be agreed, or a price per log-in can be agreed. Hardware and infrastructure costs are included in the monthly fee. However there is a separate charge for physical devices to support U2F or FIDO2.0. These are typically less than £20 per device for small volumes. Large discounts are available for 50 thousand devices.	
University of Manchester	Education	Identity and Access Management	What do you see as the key considerations for implementing IdAM in a multi-supplier SIAM model?	The key concerns are a working party group to govern change management and transparency between parties and stakeholders. Our response to this question is best illustrated using the DfE project as a case study. The purpose of the project was to: improve user experience increase productivity provide better value for money deliver a better service enable full control of access to services These objectives were to be delivered in the context of providing improved usability and security, particularly of sensitive data. The solution also needed to easily support future unknown services and data integrations as they arose. The central design challenge was to embrace a model whereby legacy systems in an 'unknown' state could be onboarded swifty and straightforwardly, with minimal change requirements on the legacy systems themselves. This would deliver control of onboarding costs and mean that the implementation of new systems could proceed speedily. In addition, it was important to retain the fundamental business rule structure governing user accesses of all types, as the integration issues surrounding the legacy systems varied as each had differing authentication and authorisation structures. Solution: Our Identity Access Management solution has been configured deployed. A large amount of user data from disparate sources were cleansed and imported. This data is now maintained and synchronised through various integration methods in the live service. Specific Customisations Texuna configured its Identity Access Management platform to the exact needs of the Department for Education and integrated a number of distinct DfE's systems based on differing technology. End users have differing functionality and integrated services based on their account profiles. Profile data is used in business rules to give the customised access. These rules are configurable via an administrator web interface. Experience of implementing in multiple languages: English, Irish, Scottish Gaelic, Welsh Experience implementing an identity system that works across multiple domains Secure Access acts as a common gateway where security, access and permissions can be standardised and applied across differing integrated DfE systems that use different technologies. The Secure Access solution provides integration flexibility over the business rule structure of the third party system, so that the information needed in a SAML response will allow users to be routed to the appropriate authorisation sub-section seamlessly is provided. i.e. if a user is linked to an organisation of type 'Community School', when they log into an external system they are sent to home page A, but if the user is linked to an organisation of type 'Further Education College' they are routed to home page B. This flexibility provides full support for user hierarchies and sub-systems by type. Being ISO20000 compliant and experienced both with ITIL processes and working in a multi-vendor environment with the DfE, Texuna can easily demonstrate our successful work within a SIAM style working practice. After the DfE permitted Texuna to migrate the Secure Access service away from Eduserv into a public cloud service (AWS), the DfE brought in BAE to help orchestrate responses to all priority 1 incidents across a team of vendors in a SIAM style following the migration of all services away from Eduserv.	

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University of Manchester	Education	Identity and Access Management	They University reserves the right to utilise available UK Public Sector Procurement frameworks. Please list applicable frameworks that your organisation's services are listed on and which one(s) you would propose we could use to procure these IdAM services	Texuna is listed both on the Digital Marketplace Digital Outcomes and Specialists framework and on GCloud 9. Our IAMs solution on GCloud 9 may be found at: https://www.digitalmarketplace.service.gov.uk/g-cloud/services/508969317961924	
University of Manchester	Education	Identity and Access Management	Please provide any other comments, observations, or lessons learned you feel appropriate at this stage.	It is commonly recognised now that systems that are password-based (even if properly hashed and salted on the client side with the most recent algorithms as you might come to expect), centrally stored secrets are inherently weak and subject to attack.

Single Sign-On at the very least is required to simplify end user behaviours and secure their everyday practices. However this has the effect of further concentrating a single point of failure. Strong password policies often encourage counterproductive behaviours and need to be well thought out.

Many solutions in the hacking arms race have promoted a growing sophistication and complexity of behavioural and biometric options (multi factor authentication, or MFA) that are more frictionless in use than rigorous approaches such as 2 factor authentication (2FA) (who you are, what you know, something you have). Unfortunately MFA and 2FA are misused, and even Google's Authenticator cannot truly be called 2FA. Therefore, following the state-sponsored hacking of Chinese dissidents abroad who were seemingly protected by Google Authenticator 2FA, Google themselves no longer permit the use of Google Authenticator internally to access their own systems. Google now promote through FIDO the use of PKI based U2F physical devices to secure access in passwordless authentication.

In the medium to long term an IAM has to be cognisant of the coming impact of self sovereign identity, blockchain and the move away from passwords toward U2F (which can be integrated with student and staff access cards). Biometrics and behavioural monitoring is currently trendy, but as the evidence from Cambridge Analytica demonstrates, inappropriate capture, use and analysis of such private data could constitute privacy violations that the student population and liberty of academic staff could easily challenge and rebuke. Open standards, publicly accessible networks (including Eduroam), Bring your own Device and Bring your own ID are more likely to win the support of students and academic staff. And above all, the use of Open Source software and open standards, as well as clear policies and guidance on what behaviours are monitored and how, on what data is stored and options to review and remove such data, will quickly come to be expected as a minimum by students and academics in a post-GDPR world. | |
| Hackney | | eRecruitment | Please provide a draft project plan detailing respective inputs involving the Provider and the Council from system build, through parallel run, to live status starting November 2015 and completing by no later than November 2016 to April 2017 | See attached sample draft project schedule. This is provided in both .mpp and ,pdf formats. | |
| Hackney | | eRecruitment | Providers should outline how they intend to support the implementation process and undertake the tasks outlined, from the contract commencement date until the application has gone live. There should be all tasks leading to successful implementation with sufficient assurance of the integrity of the system
This should include an indication of the number of staff allocated to the process, and their experience/skills in such implementations.
They should also indicate whether they consider that the implementation programme would provide them with sufficient assurance of the integrity of the system, or whether there are additional tasks required.
Details included in the Response and Pricing schedule will need to reflect any additional requirements | Refer to The Hire Lab Product Supplementary Information Document for more information. The Hire Lab hiring management product is deployed in many organisations across the UK and Ireland including public sector bodies, recruitment agencies, business organisations and Tier 1 commercial companies. Some examples include Samsung, CPL Recruitment, Topaz, Educational & Training Boards and the Business Employers' Confederation. The Hire Lab product focuses as much on the candidate as on the recruiters. We provide candidates with their own Council fully branded careers portal. We provide recruiters with all the traditional ATS features whilst also delivering a host of other features including a range of assessment tools (automated video, language assessments, skills tests as well as psychometric), candidate attraction facilities, candidate onboarding and much more. | |
| Hackney | | eRecruitment | Please confirm that the Provider will outline here any dependencies or constraints on the implementation process, including listing the level of involvement that the Provider will expect from the Council; | There are no constraints on this implementation for the council. We have already deploued our Hire Lab technology solution in many other organisaton so it is tried and tested. Dependecies on the council are mainly in; project scoping discussions and schedule review and approval; providing branding, messaging content, etc as well as user acceptance testing and particpating in user training. | |

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Hackney		eRecruitment	Providers should describe the approach to their software design and list the modules required to meet the Council's requirements.	The TheHireLab web application runs in the .NET environment on a Windows Server 2012 and IIS (Internet Information Services) configuration in the Windows Azure Virtual platform on a SQL/Server database. The TheHireLab system can scale to accommodate any number of users. Windows Azure provides almost unlimited scalability to hosted applications. Compute instances may be added or removed from the application as and when they are required. As the Hire Lab is available off the shelf the significant body of work for the Council will be focused on bespoke systems integration (OpenText, etc), data migration and the addition of a number of new product features.	
Hackney		eRecruitment	Please confirm that the Provider will provide a test environment and a development environment in addition to the live environment;	The Hire Lab provides a development, test (pre-production and live environemt as standard.	
Hackney		eRecruitment	Please confirm that the Provider will carry out unit testing and integration testing on the components of the completed application build, in conjunction with Council staff. Please give brief details of your approach;	The Hire Lab Quality System includes a number of product test phases; 1) Unit, Integration & System Testing These test stages are done as part of the product development lifecycle by members of the R&D team. This testing is done on a development branch of the software code base within the development environment. 2) Performance Testing Once the product has been functionally tested successfully per stage 1 the product is moved to the test environment for performance testing. Performance testing is executed via a series of automated scripts. 3) User Acceptance Testing Having successfully passed the performance test stage the product can be made available to the council for UAT in the test environment. UAT users can access the UAT test environment over a secure SSL web link with their username and password. This test environment can be accessed from any device once it has an IP connection. As part of detailed project scheduling council staff can be assigned to these acitvities as required.	
Hackney		eRecruitment	Please confirm that the Provider will identify & log all errors and anomalies to facilitate program correction and re-test;	Specific deliverables that will be communicated regularly and part of key milestone handovers to the council will include: • Detailed Test Plans • Test Results, including Pass rates, fail rates, block rates for the various testing categories. During the test phase, a regular test report will be distributed to impacted parties for the duration of User Acceptance Testing. This will detail: • Number of Tests Planned, Run, Passed, Failed, Blocked • Any issues logged.(Issue Severity, Description, Number of tests impacted) • Planned resolution timeframes These tests incorporate different testing strategies, including Performance/Load testing, Regression testing, Security testing and Usability testing. A final handover report will be provided. This will contain: • Final status of testing • Open Issue List • Any workarounds required	
Hackney		eRecruitment	Please confirm that the Provider will ensure that error and warning messages are set with the appropriate triggers / limits to meet the needs of the business and maximise their value and credibility;	In all cases, any issues found through the testing process are assessed and any potential show-stopper issues are assessed jointly with our client to ensure that regardless of the percentage pass rate, no software is approved for handover if there is a showstopper problem present, unless the client approves a waiver.	
Hackney		eRecruitment	Please confirm that the Provider will ensure that all error and warning messages are examined with appropriate action taken to ensure the accuracy of processing and output and evidence the check with initials and date;	When defects are flagged they are assessed by our technical team before being accepted as defects. We will maintain a live summary of the severity of issues raised and their disposition (open/fixed/non-reproducible).	
Hackney		eRecruitment	Please confirm that the Provider will check that all reports have been produced and that they meet the specification requirements and display the correct information. This will include identifying and logging all errors and anomalies to facilitate program correction and re-run if required;	Issues are assigned a Severity rating in alignment with international ISO9000 standards, i.e.: • Severity 1 - "show-stopper" • Severity 2 – "serious" • Severity 3 – "annoying" • Severity 4 – "cosmetic" Solutions and/or workarounds for the issues will be identified. Open issues for which there is agreement on a schedule for delivery will be detailed.	
Hackney		eRecruitment	Please confirm that the Provider will ensure that all web links operate satisfactorily and that each applicant portal is functioning as required;	These will be test cases in the User Acceptance Test.	

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Hackney		eRecruitment	Please confirm that the Provider will enable the creation of multiple portals each with their own branding for applicants to apply for vacancies;	The Hire Lab facilitates two options for all our clients. 1) Diffrerent candidate portals per hiring program or 2) Single candidate portal supporting all client programs. In either case each program can be fully branded and have its own marketing collateral and messaging.	
Hackney		eRecruitment	Please confirm that the Provider will conduct end to end system checks with users to verify the accuracy of the all electronic interfaces in accordance with the system specification;	These tests will be conducted as system testing and validated as part of the UAT.	
Hackney		eRecruitment	Please confirm that the Provider will produce full documentary evidence, clearly signed and dated, whilst undertaking each of the above activities to ensure that errors have been logged, program changes made, with resultant corrections; retain details for inspection until 30 September 2017;	All test reports will be signed, dated and retained per the needs of the Council.	
Hackney		eRecruitment	Please confirm that the Provider will produce revised document flowcharts for use by the business showing the flow of data to update the application. For every type of form or data there must be: A. The original form for each type of entry, its source and its path. B. Classification of the form – paper or electronic C. What is done at each stage of the form's journey. D. Timescales and deadlines. E. Information on the consequences of non-compliance;	Flowcharts can be provided detiling the business logic through The Hire Lab system.	
Hackney		eRecruitment	Please confirm that the Provider will carry out any and all such other tasks and duties as may be reasonably expected by the Council in its capacity as a major employer of staff, to ensure that the transfer of records to the new solution is a smooth process and without major incident;	Texuna always work in partnership with our clients to ensure that projects are successfully scoped, planed, designed, delivered and supported. Texunatech confirm that we are happy to carry any and all such other tasks and duties as may be reasonably expected by the Council in its capacity as a major employer of staff, to ensure that the transfer of records to the new solution is a smooth process and without major incident;	
Hackney		eRecruitment	Please detail the minimum and recommended configuration (Processor, memory, hard drive, etc.) for the client platform;	Windows Server 2012, 8 core Intel Xeon E5 processors, 56 GB RAM, 605 GB hard drive	
Hackney		eRecruitment	The supplier must list any Java requirements including Java version numbers • Client Java • Server Java;	Java 1.7	
Hackney		eRecruitment	• Desktop / Laptop and VDI clients should access the system through a browser, the Council standard is IE9;	The Hire Lab supports the following browsers and versions; Chrome 24+, Firefox 18+ and IE 9+.	

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Hackney		eRecruitment	• The Council prefers distributed and non-distributed three tier architecture wherever possible, i.e. • Databases will reside on dedicated database servers • Applications will reside on dedicated application servers • Different environments should be on different servers • Clients will remain clients, not application or database servers. Please describe the architecture that will be applied to the Council's hosted service.	The Hire Lab platform is a multi-tier system implemented using the Microsoft .NET platform. The system runs in a Windows Server 2012 environment within the Azure cloud platform. Presentation Tier: The presentation layer is implemented using ASP.NET technology. Business Tier: The business layer is implemented using the C# language. Data Access Tier: The Hire Lab platform uses ADO.NET at the data tier. Persistent storage of data is done using the SQL Server 2012 database.	
Hackney		eRecruitment	• The supplier must provide a network and infrastructure architecture diagram. The architecture diagram must show; • The TCP/ UDP ports used between all components in the architecture, e.g. the application server requires the TCP port 1433 to the database server; • The recommended hardware specification of all components, e.g. 4GB RAM, 100GB HDD, 2x vCPU. The recommended hardware specification should be proposed based on five years usage. The supplier may alternatively provide a method for calculating the specification and estimating growth, e.g. every additional 100 users requires an extra 2GB RAM; • The recommended operating system of all components, e.g. Server 2008 R2 • The primary services used on each component, e.g. IIS, FTP, MS-SQL; • A diagram for each environment, e.g. the production environment must be shown separately from the development, test, train environments;	The Hire Lab system uses TCP ports 80 + 443. The default SQL Server port is 1433. The recommended hardware specification is 8 core Intel Xeon E5 processors, 56 GB RAM, 605 GB hard drive. The recommended operating system is Windows Server 2012. Internet Information Service(IIS) is used as the web server. Refer to The Hire Lab Product Supplementary Information document for the architecture diagram.	

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Hackney		eRecruitment	• Mobile working must be secure. The supplier must; • Confirm the devices and operating systems that are supported, e.g. Iphone 5 / ios6 and / or Samsung S5 / Android 5.1; • Confirm if containerisation is used, e.g. data within the application cannot be sent to external applications, such as dropbox or googlemail; • Confirm what encryption algorithms are used to store and send / receive information (if any), e.g. Data at rest is stored at 256bit AES encryption. Data in transit is also encrypted to 256bit AES; • Confirm if the encryption is provided by the application or the operating system, e. g. the data at rest encryption is provide by underlying operating system; • Confirm the total number of records that can be stored on the device, e.g. it is only possible to work offline with 50 records; • Confirm that the operating system is supported by the vendor, i.e. Microsoft no longer supports CE. Devices that use Windows CE will not be accepted as appropriate architecture;	Regular security tests + audits are performed on the system to ensure that no security flaws exist and that the system adequately satisfies the security requirements	
Hackney		eRecruitment	Hybrid hosted architecture must support the following technical standards. i.e. it may be necessary to install a server on the council network for integration purposes. This server must conform to ICT Architecture Standards. The council no longer promotes or supports alternate technologies. Desktops / Laptops • Windows 7 Servers • Windows Server 2012R2 Databases • MS-SQL 2012 R2 Office • 2013 (All client software must support Office 2013) Internet Explorer • IE 9 / 10 / 11	The Hire Lab platform is a multi-tier system implemented using the Microsoft technologies and is fully compatible with the listed technologies and standards	
Hackney		eRecruitment	The application must work on the Council's extranet (virtual environment, Apache)	The Hire Lab platform can be configured to work on any extranet	
Hackney		eRecruitment	Please confirm that the solution will be easy to learn and operate by users unfamiliar with the Provider's software. Please provide information on why the solution is considered compliant in this area;	The Hire Lab platform is a very user friendly system with an intuative user interface. The system has been designed to industry best practices for user interface design. The HireLab has been designed collaboratively with our clients ensuring that there has always been a focus on usability at the front end and not just implementing back end functionality. In addition to this by using the agile development methodology we are able to quickly iterate through different versions of the product ensuring that we can continually keep the front end user friendly, based on any direct feedback from existing users.	
Hackney		eRecruitment	Please confirm that the solution will include an iterative and logical menu access system that can be configured to suit the Council's needs;	The Hire Lab platform has a very simple menu access system which can be configured to client specifications	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Hackney		eRecruitment	Please confirm that the solution will have a web portal to facilitate users and employees accessing the application from a variety of locations and through a variety of devices;	The Hire Lab is a cloud based solution so all access is via https over the Internet. The full range of The Hire Lab product functionality is currently supported on tablets (IOS6+, Android 4.2+ and Windows 8+). A subset of the Hire Lab product functionality (e.g. dashboards, candidate thumbnails, messaging centre) is available on smartphones. For usability reasons as some of the features do not lend themselves to the smaller mobile devices, these features are not available. However these few remaining features can be mobile optimised if required.	
Hackney		eRecruitment	Please describe the options that are available for configuring job search and presentation of portal job search and job details	The Hire Lab platform allows users to search for jobs using multiple criteria eg. Category, location, keyword etc. Search results can be ordered in multiple ways eg. Relevance, job closing date, location etc. Job details are presented in a clear and concise manner which is also configurable allowing clients to show or hide any element of the job details	
Hackney		eRecruitment	Please confirm that the solution will enable multi-templates to be configured to allow sub units and / or clients of the Council to apply local branding / branding variations;	The Hire Lab platform allows for the creation of sub units or clients, each with their own separate branding	
Hackney		eRecruitment	Please confirm that the solution will include favourites and keyboard shortcuts for more experienced users;	The Hire Lab platform provides keyboard shortcuts for the most common tasks	
Hackney		eRecruitment	Please confirm that the solution will be fundamentally date / event driven on fields that are not free text;	The Hire Lab platform keeps a record of data addition + modification for all core data fields	
Hackney		eRecruitment	Please confirm that the solution will include an on line audit trail for all input to the system, that can be traced back to user, action taken (before and after values), date and time;	The Hire Lab Timeline feature provides a full audit trail for all data input + modifications including user + date tracking. Audits can be done on jobs and candidates.	
Hackney		eRecruitment	Please confirm that the solution will include the facility to switch auditable fields on and off	The Hire Lab solution allows for full control of all auditable fields	
Hackney		eRecruitment	Please confirm that the solution will include the ability to audit user activity where user has view only access, to deter spurious access to records;	The Hire Lab solution allows for a full audit of user activity including: date + time user logged in, length of login session, pages viewed, etc.	
Hackney		eRecruitment	Please confirm that the solution will include a scheduling tool to run system related functions on a scheduled basis; If compliant, please explain the types of tasks that can be scheduled;	Tasks that can be scheduled include but not limited to: Automatic movement of candidates through the pipeline Matching of candidates to jobs Notification of new jobs to candidates	
Hackney		eRecruitment	Please confirm that the solution will include contextual help on screens and functions; If compliant, please describe the way this works and state whether or not it includes tool tips and workflow type features.	The Hire Lab solution has contextual help on all appropriate screens. A combination of tooltips, in-page help + hyperlinks to knowledgebase articles are used	
Hackney		eRecruitment	Please confirm that the solution will allow help messages to be customised by the Council to tailor messages to local requirements;	The Hire Lab solution allows clients to change help messages + notifications	
Hackney		eRecruitment	Please confirm that the solution will allow messages to be displayed to users, at login or when accessing specified screens, either one-off or continuously for a period of up to 14 days.	The Hire Lab solution allows customised messages to be displayed to users both at login or in specified pages	

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Hackney		eRecruitment	Please confirm that the solution will incorporate a hierarchy of role based user access (security profile), allowing for a mix of view and update access (data and parameters) across individuals, teams, sections, departments, groups of departments, functions, screens, Please give details of how this is structured and the flexibility available;	The Hire Lab solution allows for an unlimited number of roles to be configured. Each role can be individually configured to grant or prevent access to any task or privilege within the system. Any system function can be enabled or disabled for any role allowing full control of aceess to the system + data.	
Hackney		eRecruitment	Please confirm that the solution will include functionality to lock selected users out of the system – at certain times or until further notice;	The Hire Lab user authentication mechanism provides the ability to disable any specified account and also enforce time based account control eg. Only allow users to login during business hours	
Hackney		eRecruitment	Please confirm that the solution will, within the core application, cater for 40 to 60 concurrent users; If compliant, please confirm how many named users could be set up and whether there is a maximum on concurrent users in terms of the licence fee or system capacity;	There is no limit to the amount of users that can be setup. Due to the cloud based architecture of the system, scaling upwards is automatically done which allows a large amount of concurrent users to be supported.	
Hackney		eRecruitment	Please explain how your system licensing works;	The Hire Lab license for Hackney Council is to cater for circa 100,000 application per year. Within this you can habe an umlimited number of users, jobs, etc.	
Hackney		eRecruitment	Please confirm that the solution will use a username and password for accessing the system;	The Hire Lab solution uses an email/username + password for user authentication.	
Hackney		eRecruitment	Please confirm that the solution will incorporate the ability for the Council to set a period for password validity and force users to change it (without recourse to systems administrators) at the end of that period;	The Hire Lab solution provides a full set of user security control features including validity + password strength	
Hackney		eRecruitment	Please confirm that the solution will disallow the reuse of previous passwords within 8 generations / 12 months, whichever is longer. If your application's standard is less generations or a shorter period, please give details of its functionality.	Generations + time period enforcement is configurable	
Hackney		eRecruitment	Please confirm that the solution will record the last log in date and time for all users and report on this data;.	The Hire Lab solution stores the last login time + date for all users + this data can be viewed + reported	
Hackney		eRecruitment	Please confirm that the solution will lock out any user who fails three attempts to log in; The clients system administrator should be able to unlock the account if this occurs;	The Hire Lab solution provides a full set of user security control features including account lockdown after 'n' failed login attempts	
Hackney		eRecruitment	Please confirm that the solution will include a password reset facility that is secure but that does not require the involvement of a system administrator; If compliant, please explain the mechanism and outline any constraints and dependencies;	The Hire Lab solution provides a simple password reset system. At the login screen a user can select the button for reset password + will then be asked to enter their user name/email address. A reset email will then be sent containing a password reset link. This link can only be used once. The lnk will redirect the user to a secure page to create a new password.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Hackney		eRecruitment	Please confirm that the solution will allow a systems administrator to disable individual users' access to the application;	The Hire Lab solution allows administrators to enable or disable individual accounts	
Hackney		eRecruitment	Please confirm that the solution will include a system diary, where users can record events and prompts for future action, which the system will draw to the users attention on the relevant date;	The Hire Lab solution provides a task/event manager + a user calenda. These features allow users to enter event details + actions and will alert users at the relevant time	
Hackney		eRecruitment	Please confirm that the solution will include the facilty for events and reminders to be triggered by the system through workflow.	The Hire Lab solution provides the ability to trigger events + alerts based upon system actions	
Hackney		eRecruitment	Please confirm that the solution will include customisable fields and screens with the same functionality as standard fields and screens, e.g. validation, formulae, date driven, access and security, etc.;	The Hire Lab solution allows all main screens to be fully configured while preserving functionality	
Hackney		eRecruitment	Please confirm that the solution will allow all fields that hold data to be reported upon, including user definable fields;	The Hire Lab solution provides a comprehansive reporting capabilites. All user data can be reported on through a predefined set of reports or new reports can be generated.	
Hackney		eRecruitment	The Provider must outline details of the premises and environment within which the servers which will be used for the Council's service will be located, including: • Location and nature of area • Construction details • Environment controls • Access security and monitoring • Isolation features to contain any incidents • Typical staffing levels;	The hosting and management environment is maintained at Microsoft data centers, with Microsoft's Northern European datacenter located in Dublin. Server cages are locked, you can't enter them without completing two-factor authentication, and the entire facility is monitored 24/7 by video	
Hackney		eRecruitment	The Provider must explain the technical infrastructure that they recommend to ensure secure and fast communications between client and server, and vice versa;	SSL encrypts the data of network connections in the application layer. SSL uses cryptographic protocols designed to provide communication security over the Internet. It uses X.509 certificates and hence asymmetric cryptography to authenticate the counterparty with whom they are communicating	
Hackney		eRecruitment	The Provider must specify any and all hardware, software, communications protocols, dedicated lines and links, cryptographic protocols, firewalls, encryption mechanisms, etc. that will be used;	Windows Server 2012 machine with Intel x86 processors. Communication between client + server is via the public internet. HTTP/HTTPS/SSL protocols are used for communication. Advanced Encryption Standard (AES) is used to encrypt the data at rest	
Hackney		eRecruitment	The Provider must explain their approach to server redundancy;	On Azure, all information saved on Blobs are replicated 3 times on different physical HDDs and with the georedundancy feature, another 3 copies will be located in another datacenter. The 3 copies are used to sustain a physical HDD failure and to be able to provide storage account accessibility according to the Microsoft SLA. Geo-Restore is the standard disaster recovery option available in Azure SQL Database.	
Hackney		eRecruitment	The Provider must list the areas of the communications set up that will be the responsibility of the Council, and note any potential costs or equipment required;	No additional communication setup is required. A high speed public internet connection is the only requirement	
Hackney		eRecruitment	The Provider must provide evidence of up to date, independent, external penetration testing and / or statement of security testing for the main application and any self-service element;	Regular security tests + audits are performed on the system to ensure that no security flaws exist and that the system adequately satisfies the security requirements	

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Hackney		eRecruitment	The Provider must explain the policy and process for continuing security testing;	Regular security tests + audits are performed on the system to ensure that no security flaws exist and that the system adequately satisfies the security requirements	
Hackney		eRecruitment	The Provider must explain virus-checking procedures and processes to isolate any incidents.	All host machines have Microsoft Security Essentials installed. MSE is an antivirus program that provides spyware, malicious software, and virus protection.	
Hackney		eRecruitment	The Provider must state the normal opening times for help desk support;	8am to 6pm, Monday to Friday excluding public holidays. Help desk SLA is outlined in the attached Hire Lab Product Supplementary Information document.	
Hackney		eRecruitment	The Provider must indicate what scope of support and service levels they provide as standard in terms of guaranteed response, work arounds and resolution times for logged calls;

ATTACH LBH SERVICE LEVELS AS AN APPENDIX | The technical SLA is outlined in the attached Hire Lab Product Supplementary Information document. | |
| Hackney | | eRecruitment | The Provider must explain the method of rolling out software fixes / updates / releases / patches and include information on what the Council might need to do when this happens (access to system, testing, etc.)
The Council expects the Provider to undertake broad functional testing for all system enhancements / patch upgrades and statutory upgrades, and produce evidence to support what has been done, prior to application to any Council applicant environments. The Council will carry out user testing specific to the Council environments and to client acceptance protocols; | The Hire Lab solution periodically will deploy fixes + updates to the live system. These releases will be executed outside of business hours to minimise disruption. The Council will be informed in advance of any system upgrades for testing purposes. | |
Hackney		eRecruitment	The Provider must explain whether it is possible to roll back from the upgraded software in the event that it there are faults.	Before any software upgrade a complete backup of the software and database is performed. In the event of serious faults being detected on the upgraded system a rollback can be easily performed	
Hackney		eRecruitment	The Provider must indicate the level of client self sufficiency for promotion of configuration from the Development System to Test and then to Live.	The Council will not be able to do this. All live product upgrades will be done by Texuna.	
Hackney		eRecruitment	The Provider must indicate the if the Live system can be copied to either the Development or Test systems	Yes, the live system database is regularly coiped to the test system to ensure that all testing is done in a simulated live system to enure high quality test results	
Hackney		eRecruitment	The Provider must explain what User Groups are available for the application, typical subscription rates and how they influence the resolution of issues and the introduction of new functionality.	Through our pathfinder programme, clients are able to influence and partner with us on the development of our roadmap. From inception, The Hire Lab has been built in partnership with our clients and through their suggestions and feedback we are able to tailor our product to the market needs. 100% of our product functionality is driven by our client needs based on client pain points, feature requirements and so on.	

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Hackney		eRecruitment	The Provider must provide a sample Disaster Recovery Plan which will ensure continuity of the hosted service within timescales acceptable to the Council. The plan must explain how the continuity of the hosted service would be achieved;	Each layer of the Microsoft Windows Azure platform infrastructure is designed to continue operations in the event of failure, including redundant network devices at each layer and dual Internet service providers at each datacentre. Failover is in most cases automatic (requiring no human intervention), and the network is monitored by the Network Operations Centre 24x7 to detect any anomalies or potential network issues. The database copy feature creates a new database that is transactionally consistent with the source database at the time when the copy process is completed. In effect when the copy process is in progress, any changes that were made to the source are replicated to the copy. The copy can be created on the same server as the source or on a different server. The copy can be used in the rollback plan for changes to schema or data, or unwanted deletions or modifications. The database copy (backup) can be run at regular intervals during the day as required. In the event of a catastrophic failure involving an entire datacentre, Hire Lab can re-deploy the application at a backup location within minutes. To provide disaster recovery of data and disks, utilizes the Geo-Replication capability of Storage. All changes made by the application or by the customer to the customer-owned operating system disks or data disks are preserved, even in case of a hardware failure, by using Blob Storage. Blobs and Tables are geo-replicated between two data centres apart from each other on the same continent, to provide additional data durability in the case of a major disaster.	
Hackney		eRecruitment	The Provider must acknowledge here in writing that they agree that all records, documentation, software configuration, data and any other relevant information held as a result of this contract are the confidential property of the Council.	Texuna acknowledges that all records, documentation, software configuration, data and any other relevant information held as a result of this contract are the confidential property of the Council	
Hackney		eRecruitment	The provider must on termination of the contract for any reason, make all records, documentation, configuration details, data and any other relevant information available to the Council by electronic means, or destroy them securely as the Council may require.	Texuna can arrange a complete handover of all client data on termination of the contract. Following the handover of the data all data stored by Hire Lab can be securely destroyed	
Hackney		eRecruitment	Please confirm that the solution will allow the users to input large volumes of data in an efficient manner, that there will be a response time of less than 2 seconds for all data entry tasks and that the general response time is less than 3 seconds for all other tasks. Please describe any factors which could have an adverse impact on the response time from the solution;	The Hire Lab solution is a cloud based system which allows unlimited scale + ensures that the response time is less than 2 seconds. The only possible variations in response time would occur when performing complex searches on the system	
Hackney		eRecruitment	Please confirm that the solution supports federated access e.g. SAML	Federated access is supported	
Hackney		eRecruitment	Please confirm that the solution supports open standards e.g.. OpenID or OAUTH	OAUTH is supported	
Hackney		eRecruitment	Please confirm that the solution supports custom integration, e.g. file types CSV, TXT, XLS, XLSX, XML via platforms SFTP and FTP, automated uploads, manual uploads	CSV and xls(x) uploads are supported	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Hackney		eRecruitment	The supplier must; • Confirm all methods of integration with the system that can be used, e.g. web / windows services, flat files, APIs, screen scraping, etc.; • Confirm all methods of integration included within the scope of the procurement. • Confirm the licensing implications of method of integration, e.g. the integration mechanism can be used repeatedly without licensing implications; • Provide a document (or a sample document) that explains to technical staff how to use, configure, and / or develop the integration, e.g. this should be a technical document, designed for professional ICT staff. Sales documentation will be rejected.	The Hire Lab system supports csv + xls file integration. This allows clients to upload + download data to + from the system. A SOAP API is also available to clients to allow further integration. Clients are free to use all integration methods without limitation and no licensing implications. A sample is provided in The Hire Lab Product Supplementary Information document.	
Hackney		eRecruitment	Please confirm that the solution will have the capability to integrate with the Council's email system / server (MS Exchange Server 2007 SP3, 8.3.83), so that mail generated by the application can be sent to Council employees and managers and date related activities, including interview slots, can be linked to the Outlook calendar. If compliant, please explain the mechanism and outline any constraints and dependencies;	The Hire Lab system can integrate with MS Exchange Server for the sending of outgoing email. ICS files are used to integrate date related activities to the Oulook calendar. ICS is a global format for calendar files widely utilised by various calendar and email programs including Google Calendar, Apple iCal, and Microsoft Oulook	
Hackney		eRecruitment	Please confirm that the solution will include, as standard in the tender price, functionality allowing integration with Active Directory / Single Sign on;	The Hire Lab system integrates with Active Directory and this is included in the Tender Price.	

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Hackney		eRecruitment	The Council Document Management system (eDOCS) is provided by OpenText, system version 5.3.1, patch 5b. The eDOCS system acts as the central document store for the authority and as a single source of truth, and currently holds over 6.5 million documents and 2.1 million folders. Hackney's vision would be that eDOCS is used as the underlying document management system within the new Recruitment system, and that a user of the system will be able to manage all documentation through the new system's front end and have no need to enter eDOCS directly. eDOCS integration will be required to identify, save, return and update documents. Documents will be either created in / uploaded to the Recruitment system. eDOCS connects with the MS office suite via an interceptor, a piece of software which directs the save/retrieve functions of Office to eDOCS. Any client-side integration with MS Office documents will need to take account of this functionality. Interfacing with eDOCS will be via a web service / windows service provided by Hackney. This service will be consumed by the relevant calling application to provide a way for the Recruitment system to cater for the following functionality: • Retrieving a list of documents from eDOCS based on metadata (for example – employee id • Saving a document to eDOCS, and tagging the document with meta data • Opening an eDOCS document and displaying to the user for editing or as read-only, depending on inherited folder security within eDOCS. • converting an eDocs document to be a downloadable copy when linked to an advertisement or external communication template;	The Hire Lab system can fully integrate with the eDOCS system using the web service / windows service provided by Hackney. The following capabilities will be made available: -Retrieving documents -Saving documents -Opening + displaying documents -Editing documents -Converting documents	
Hackney		eRecruitment	. Please confirm that the solution will integrate with the Council's eDOCS system for the storage and retrieval of Recruitment application generated documents, or documents that are relevant to the screen and content of the Recruitment application, e.g. job descriptions. If compliant, please explain how this will work;	The Hire Lab system can fully integrate with the eDOCS system using the web service / windows service provided by Hackney. Using this web service any recruitment related documents can be stored in the eDOCS system. Integration provides the following functionality: -Searching for a document. -Accessing validation data. -Uploading and Downloading a document. -Maintaining Versions, Folders, and Quick Searches.	

	Sector	Solution	Question	Template Response	Picture number
Intro					

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Hackney		eRecruitment	Please outline any experience you have in successfully integrating from your application to any EDRMS.	The Hire Lab system has successfully integrated with EDRMS systems including HP Records Manager. Any new EDRMS can be easily integrated with through the provided API. An API is the connection interface, developed by the vendor, providing safe mechanisms to read and write data to the EDRMS.	
Hackney		eRecruitment	Please confirm that the solution will provide integration with Microsoft Office 2013;	The Hire Lab system is implemented using Microsoft technologies + is integrated with Office 2013. eg. All reports can be downloaded as Excel spreadsheets	
Hackney		eRecruitment	Please confirm that the solution will provide integration with Microsoft Outlook 2013 including calendar function for scheduling interviews, and inbound/ outbound email communication with candidates and with those involved in the selection, hiring and onboarding processes;	ICS files are used to integrate date related activities to the Oulook calendar. ICS is a global format for calendar filessupported by Microsoft Oulook.	
Hackney		eRecruitment	Please confirm that the solution will integrate to allow for configuration and set up of a range of other onboarding related tasks, such as identification cards or badges, system access requests, usernames, passwords, equipment issue, etc., to be initiated from the solution so they are ready on the new employee's first day of employment; If compliant, please explain how this will work.	The Hire Lab Onboarding module can be tailored to provide any set of onboarding tasks as required by the Council. These tasks can include integration with other 3rd party systems, e.g. online training courses, user management systems, etc., file downloads by the candidate, e.g. employee handbook, etc., digital signatures where signoff is required, file uploads, e.g. candiate provide scanned copy of passport, etc.	
Hackney		eRecruitment	Please confirm that the solution will have the capability of being integrated with the HR / Payroll application to retrieve any information already held there (e.g. employee cost centre, full name, address, DOB, current and historic roles, line manager, information that an employee is a redeployee); If compliant, please explain how this will work;	The Hire Lab can integrate with any other 3rd party application via a Web Services interface or using file transfer. Once the information to be passed between the two systems is specified and approved by the Council the only other factor to be decided is whether the data is passed in real time via the Web Services interface or in batch mode using FTP.	
Hackney		eRecruitment	Please confirm how integration will work with Council's systems that are hosted on the Council's network. Please detail what the technology requirements are as well as the methods of transmission, connectivity as well as any limitations or constraints within the solution. Please explain the key features of the application that enable interaction, e.g. file formats supported, data input / output functionality, outline any significant restrictions and provide a document (or a sample document) that details the configuration requirements, and / or development of the integration. This should be a technical document, designed for professional ICT staff. Sales documentation will be rejected.	Integration with Council's systems that are hosted on the Council's network is done via the Hire Lab API, see more details in The Hire Lab Supplementary Information document.	

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	Sector	Solution	Question	Template Response	Picture number
Hackney		eRecruitment	Please confirm how integration will work with Council's systems that are NOT hosted on the Council's network. Please detail what the technology requirements are as well as the methods of transmission, connectivity as well as any limitations or constraints within the solution. Please explain the key features of the application that enable interaction, e.g. file formats supported, data input / output functionality, outline any significant restrictions and provide a document (or a sample document) that details the configuration requirements, and / or development of the integration. This should be a technical document, designed for professional ICT staff. Sales documentation will be rejected.	Integration with Council's systems that are not hosted on the Council's network is done via the Hire Lab API, see more details in The Hire Lab Supplementary Information document.	
Hackney		eRecruitment	Please confirm that the solution will provide integration for automated transfer of hired candidates details to HR&Payroll system for conversion to new starters	Once a candidate is moved to Hired within The Hire Lab this will trigger an exchange of the required candidate information to the HR & Payroll system through a Web Services API. The specific information to be passed between the two systems will be as defined by the Council.	
Hackney		eRecruitment	Please confirm that the solution will recognise vacancies when an employee is flagged as a leaver; If the Recruitment application is separate from HR and payroll, please explain how this will work;	Integrated with HR via web services API - when there is a leaver they are passed to us. Or manually, for them to flag that the post is based on a leaver.	
Hackney		eRecruitment	Please confirm that the solution will prompt managers that a vacancy exists together with the relevant action to be taken; If compliant, please explain how this will work;	when a job is created the owner can specify any users (managers) who need to review and/or approve the job. All such users will get a email indicating requesting them to review the job.	
Hackney		eRecruitment	Please confirm that the solution will include a routine for authorisation of the filling of individual vacancies; If compliant, please explain how this will work;	Via our job requsition module the client can define whatever process they choose for the authorisation and approval of any vacancy This can be set at a job, department or category basis. The system allows for different users to be assigned ownership of various elements or tasks within the approval process and the process can be defined and sequential based or flexible. These tasks can be date defined and alerts and tasks automatically generated from them.	
Hackney		eRecruitment	Please confirm that the solution will only allow vacancy procedures to be instigated where a vacancy exists within the establishment; If compliant, please explain how this will work;	Developed in partnership with the client	
Hackney		eRecruitment	Please confirm that the solution will allow the identification of agency workers being held against a vacant post;	The system is designed so the client can define whichever relevant information must be provided amd stored against each user. This can include specific information for agency workers. These type of users can be given defined user roles and privileges.	

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Hackney		eRecruitment	Please confirm that the solution will be deployable to managers across the Council and to individual schools Please describe the method of deployment and any implications for the Council which may arise from such wide scale end user input;	The system is cloud based and each user is added under a client defined role and privilege based approval system. This allows easy deployment across the council with users just requiring online access via any device.		
Hackney		eRecruitment	Please confirm that the solution will manage the approval process(es) for filling a post;	This approval process can be defined at role level and is flexible to allow customistaion for the client across roles, departments, hiring teams etc.		
Hackney		eRecruitment	Please confirm that the solution will allow different approval processes for different parts of the organisation, including a 'no approval' process;	The system offers a flexible approval process and these can be defined by the client to be used at any stage / for any relevant department etc.		
Hackney		eRecruitment	Please confirm that the solution will allow such processes or lifecycles to be copied, rather than recreated each time;	Process and stages can be saved and accessed for easy use later via the stored library.		
Hackney		eRecruitment	Please confirm that the solution will allow different internal email addresses to be used for vacancies, depending upon Council department;	Email addresses can be used at any level as required from user level, department level, hiring team level etc.		
Hackney		eRecruitment	Please confirm that the solution will allow for different recruitment processes for different job types / areas of the organisation	The system is fully flexible. Different hiring processes can be set at talent pool level, programme level, department level, user level or job level etc. This can be defined by the client during the implementation stage. Because the hiring stages can be set, ammended or updated at a job level, it gives hiring teams the ability to tweak and refine processes as required.		
Hackney		eRecruitment	Please confirm that the solution will allow for the creation of internal, external or internal and external vacancies;	The hiring team during the creation of the vacancy can choose which type of vacancy is relevant. This is flexible for the client to choose on setup and for each hiring team to set upon creation of the vacancy.		
Hackney		eRecruitment	Please confirm that the solution will provide a "match and gap" facility to see if there are employees, redeployees or previous applicants who match the profile of the job;	Before any role is published externally, the system first mines the existing talent pool for matches based on the hiring requirements for the role. These matches are displayed to the hiring team for review and engagement. The matches can be displayed with a % or numeric match score or just as a graded match i.e. great match etc.		
Hackney		eRecruitment	Please confirm that the solution will track each vacant post through each stage of the recruitment process, prompting action to be taken by relevant officers when this is required;	The solution tracks all activity within the hiring process and this can be pre-set by the hiring team at job creation stage. Automatic workflows can be enabled to allow for automatic tracking and processing. This automatic processing can then be linked with tasks and assigned to members of the hiring team. These tasks are then alerted to the relevant members for actioning.		
Hackney		eRecruitment	Please confirm that the solution will enable managers to compose/call up and amend advertisements and store advertising copy/narrative;	The solution has a vacancy library that allows recruiters access at any stage during the creation of a job vacancy posting. They can save adverts to this library at any stage also.		
Hackney		eRecruitment	Please confirm that the solution will maintain a library of advert templates	The hiring teams can create, edit and save any vacancy as a job template. They can store the job details, hiring requirements, workflow management, advertising channels etc for that role for easy reposting.		
Hackney		eRecruitment	Please confirm that the solution will maintain a library of specific logos and to be able to attach these to relevant design orders;	The system allows for stored files, imagery, media, video etc to be stored within a media library and can be tagged to a vacancy.		
Hackney		eRecruitment	Please confirm that the solution will record and administer adverts being placed in more than one publication;	The system stores and tracks all selected channels of attraction including publications as chosen by the client.		
Hackney		eRecruitment	Please confirm that the solution will store any specially commissioned artwork (normally as a .pdf file) linked to relevant advert and order references;	The system allows for stored files, imagery, media, video etc to be stored and tagged to a vacancy.		

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Hackney		eRecruitment	Please confirm that the solution will produce exception reporting/prompts to flag up missing information not returned by managers;	If set as a task, the system will flag any missing information or process within the hiring process. This appears under alerts, tasks and also under reports for tracking and analysis.	
Hackney		eRecruitment	Please confirm that the solution will be able to e-mail advert text or artwork and order details to the Council's advertising agents;	The system allows for job adverts to be export externally via whatever chosen channels i.e. email, online or via print.	
Hackney		eRecruitment	Please confirm that the solution will allow for the use of free text fields for making notes against each job reference, design order and applicant;	The system allows all users add notes against relevant fields etc.	
Hackney		eRecruitment	Please confirm that the solution will record key information relating to each post to be advertised/filled, including unique alpha-numeric job reference number, department, post title, media, publication date(s), etc.;	All data pertinant to the role will be stored against the job. Jobs closed for application but still in progress remain under the closed job tab. The hiring team can move these into the archive at any stage or they can be automatically be archived based on a set outcome i.e. successful hire. All data against an archived role is stored and available for viewing at anytime.	
Hackney		eRecruitment	Please confirm that the solution will allow recruiters to add competency based questions and "killer" questions to an advert / application process to facilitate an element of automatic sifting and shortlisting of applicants;	The solution will allow hiring teams to add competency based questions and "killer" questions to an hiring process to enable matching and screening.	
Hackney		eRecruitment	Please confirm that the solution will allow these "killer" questions to be added at a global level, at the start of the process (e.g. are you eligible to work in the UK?) or anywhere else in the process, and that these killer questions will despatch applicants at the point of failure rather than forcing them to complete the entire application;	The hiring teams can choose when to harness killer questions - these can be done at any stage of the hiring process - at application stage, during review or later during onboarding etc. The hiring team can choose what action is associated with a killer question i.e. automatic failure or percentage matching etc.	
Hackney		eRecruitment	Please confirm that the solution will facilitate bespoke application forms for different jobs and that the Council will have control over both the look-and-feel/branding of the applications and the content/questions included;	The system allows for the generation of application forms which are controlled by the hiring teams and can be customised for each role or group of roles, saved as templates, addition of killer questions, flexible question types, mandatory or optional settings, addition of stored artwork, logos, uploading of videos, imagery etc.	
Hackney		eRecruitment	Please confirm if the solution's Application Form allows the use of dependent questions (i.e. different questions can be displayed depending on the answer to linked/previous questions);	Yes the system offers flexible application forms that allow for question branching and the setting of sample scenarios and killer questions.	
Hackney		eRecruitment	Please confirm that the solution will record order numbers and details relevant to each job, this will include: • Originating department order number • Recruitment Team order number and details, • Design order number if specialist artwork is required;	The solution with record a vacancy's orer number and any relevant details for each role. The client can choose what are the required details at a job level and define these.	

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Hackney		eRecruitment	Please confirm that the solution will facilitate the recording / set up of any external resources to be used in the recruitment process, such as assessors, interviewers, suppliers, etc., and record and report on costs;	The system allows for the addition of multiple user types i.e. external resources and allows for defined roles and privileges within the system to be customised at a user level. It also can record and track their useage and any relevant kpi's allowing for powerful insight and analytics.	
Hackney		eRecruitment	Please confirm that the solution will enable collation of individual adverts to produce a jobs bulletin and enable the bulletin to be published in a variety of ways, for example: • printed • on internet/intranet • by e-mail; Note: Some bulletins may be for internal distribution only;	The system will allow the recruiter to group vacancies in any arrangement and broadcast them via any required channel i.e. pdf, rss feed, email etc.	
Hackney		eRecruitment	Please confirm that the solution will automatically display Council jobs on the Internet, in particular to load the information onto the following sites: • The Council's own website • Up to fifty other websites that the Council may choose to use collaboratively including individual schools' websites;	The solution will automatically display vacancies on any required site on the Internet.	
Hackney		eRecruitment	Please confirm that the solution will facilitate integration with social media sites so that vacancies can be retransmitted through such sites;	The system is integrated via api connections to all the main social media channels. This allows simple posting of vacancies across all your social media channels.	
Hackney		eRecruitment	Please confirm that the solution will facilitate applicants applying using data they hold on social media sites and in cloud based storage solutions	The system allows an applicant the choice of importing their information via their social media account or to create their profile from the beginning. If accessing through a mobile device it offers them the choice of creating a profile, importing their social media profile or adding a cv via a cloud based service.	
Hackney		eRecruitment	Please confirm that the solution will facilitate automatic transmission of vacancies via an RSS feed;	Simply choose RSS feed as one of your publishing channels and instantly send out your vacancy across your RSS channel.	
Hackney		eRecruitment	Please confirm that the solution will maintain links with various job boards, including but not limited to Job Centre Plus, Guardian, e-Teach, Jobs Go Public, Teachernet, to include automatic / easy upload of job advert and attachments.;	The system is currently integrated with all the large job boards. Its as simple as ticking which job board you'd like to post your role out to and click save to easy add your role to their board.	
Hackney		eRecruitment	Please confirm that the solution will incorporate a Diary Management facility to prompt when deadlines for tasks fall due and also automatically update task status when action has been completed.	The system has a diary management and task manager module that allows users create personal, team based or candidate focused tasks. These tasks can also be automatically cfreated by the system based on actions or dates pre-set within the system or by a user. Every action or task is time and date stamped and updated with current status. Delays or roadblocks can be configured to alert hiring teams etc.	
Hackney		eRecruitment	Please confirm that the solution will allow an applicant to set up a personal profile / portal that can be used and accessed to apply for jobs, save part completed applications and re-use data from previous applications on an ongoing basis. Irrespective of what media source they click through from in order to apply;	The applicant is presented with the profile wizard when they first access the system. This profile wizard divides the profile into sections as specified by the client, e.g. My Details, My Qualifications, etc. The applicant can also upload attachments as part of their profile, record a profile video etc. As the applicant completes the various sections, the wizard highlights the completed sections as well as displaying a percentage (%) bar to the applicant. The client can choose what minimum percentage, profiles most be completed to before being considered a valid applicant. The applicant can save their profile as drafts, ammend it at any stage and upload documents as part of their profile.	

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Intro row above spans the top as the Intro header.

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Hackney		eRecruitment	Please confirm that the solution will protect the applicants' details by requiring a password logon to the application;	The system prompts all users to log in before they can access the application. It also has a security timed mechanism that if a page is inactive it will prompt the user to engage with the page or they are auto-logged off to ensure security for each user.	
Hackney		eRecruitment	Please confirm that the solution will allow applicants to manage their saved and submitted applications (e.g. delete saved but not submitted, and withdraw submitted applications)	The applicant can manage all their job applications using the various job folders in their portal. All Jobs are viewable and searchable in the Live Jobs folder. Any jobs the Jobfinder has been matched to appears in their Matched Folder. Any jobs that the Jobfinder has applied to appears in their Applied For Folder and they can manage these as required i.e. withdraw applications, view their status within that hiring process etc.	
Hackney		eRecruitment	Please confirm that the solution will store applicant details for re-use during subsequent applications;	Once the applicant has their profile 100% completed then they can use this to apply for any role within the client's system. This profile can be updated and managed by the applicant at any stage throughout the process. They can access this from their profile tab and also from the top right corner of every screen.	
Hackney		eRecruitment	Please confirm that the solution will allow the applicant to upload CVs and any supporting documentation to their profile;	An applicant can upload any number of attachments (to a maximum number as set by the client) as part of their profile. The types of attachments include doc, docx, pdf, .jpg, .png, etc. When these documents are to be uploaded can be controlled by the client and used at any stage throughout the recruitment process.	
Hackney		eRecruitment	Please confirm that the solution will store applicant e-mail addresses to enable appropriate communications;	Each applicant's email address is stored and tagged as their unique identifier. This email address is available to view as part of their profile but is automatically used within the system for alerts, tasks and communications from recruiters and automatically from the system.	
Hackney		eRecruitment	Please confirm that the solution will enable applicants to sort and filter the jobs available by (but not limited to) department, job type, salary;	Within any of the jobs folders, the applicant can choose to search by keyword. They can also choose the advanced search function, which allows the applicant search all live jobs from a detailed search window. Advanced Search fields can be customised for the client but typically include options including keywords, location, county, company name, job type, category, industry, career level, education level. Any jobs returned in the search can be drilled down to read in detail and then be added to the applicants Favourites Folder or applied direct at a click of a button.	
Hackney		eRecruitment	Please confirm that the solution will allow applicants to set up and manage job alerts that meet a range of criteria selected by the applicant. Explain the criteria available and how the function works.	In the applicants Settings the applicant can specify the frequency of Match & Saved Search Alerts. The available frequency is configurable by the client but typically can be; - Every day - Twice a week - Weekly - Every 2 weeks - Monthly Applicants will receive automated alerts to their email address outlining: 1. New Job matches since the last alert (match level ranked) 2. For each saved search, new jobs that satisfy the search criteria since the last alert	
Hackney		eRecruitment	Please confirm that the solution will automatically notify applicants by email when a job that interests them or that matches their skills is posted on the website, also the option for the recruiter to review applicants for Talent pools;	All applicants are automatically matched against every open vacancy on the platform. This live feed of matches and applications are available for the applicant to view from their dashboard and also within their 'Jobs' area. They also recieve email alerts of these matches based on their mail settings. They can then choose to apply to the role.	
Hackney		eRecruitment	Please confirm that the solution will allow the option for recruiter to review applicants who match and send personal invitations to apply;	All applicants are automatically matched against every open vacancy on the platform. This live feed of matches and applications are available for the recruiter to view from their dashboard and also within their 'Jobs' area. They can choose to auto apply matches to the role or for the system to alert the matched applicant of the match and prompt them to apply, or to manually send a personal invite to the applicant to apply.	
Hackney		eRecruitment	Please confirm that the solution will facilitate online application using e-forms, including downloading of Application Forms, Person Specifications, Job Descriptions and other relevant information;	The job creation manager creates a public facing job spec and e-form application for each role and can include the job overview, the hiring requirements and any other relevant information required for the role.	
Hackney		eRecruitment	Please confirm that the solution will make available application forms and supporting information for printing by the applicant;	The job overview and application form can be made available to the applicant to download as a print friendly pdf at any stage. This is a feature that the client can choose at job level to switch on or off. They can also choose to whether to highlight if printed applications are accepted or not.	
Hackney		eRecruitment	Please confirm that the solution will enable the recruiter/system admin to create an offline application form that can be attached to job ads/ posted out to applicants as required	The job creation manager creates a public facing job spec for each role. This is available to the recruitment team to download as a pdf at any stage and can include the job overview, the hiring requirements and also the relevant application form and profile required to apply for the position.	

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Hackney		eRecruitment	Please confirm that the solution will provide links to other on-line resources, e. g. (but not limited to) family friendly and other employment policies, staff benefits and working conditions, training opportunities, modern apprenticeships or similar schemes; If compliant, please explain how this will work;	The system can include any relevant information that the client would like to share to their talents pools or to specific groups of applicants / individual applicants etc. This information can be shared at any stage throughout the process and can include streamed media, video, imagery, news, links, content, documents etc. It can be shared via the applicants personalised dashboard or at any stage in the process i.e. onboarding etc. Please refer to candidate dashboard pdf file attached.	
Hackney		eRecruitment	Please confirm that the solution will produce automated confirmation of receipt of online forms, with a message specific to the job being applied for;	The system alerts and communicates with the applicant throughout their journey with the client. These alerts and messages can include everything from promotional content to specific actions within the recruitment cycle i.e. updating information, submitting forms, content etc. Everytime the applicant completes an action, the system confirms if the actions has successfully been actioned i.e. application received, profile updated etc. These alerts and messages can be customised, saved as templates, personalised by the client at any stage throughout the process.	
Hackney		eRecruitment	Please confirm that the solution will allow applicants to track the progress of their application(s) through the various stages;	The applicant can log into their personalised dashboard at any stage throughout the process and under their jobs sections - view their submitted applications and the relevant stage they are at within the hiring process for that role.	
Hackney		eRecruitment	Please confirm that the solution will allow applicants to reset their passwords through a secure, verified route, without reference to the Council's recruitment team. If compliant, please explain how this will work and the methodology / information to be used;	Under the log in screen, the applicant is offered the option to reset their password if they have forgotten it. Once the 'Forgot Password' link is clicked, the applicant enters their email address and the system automatically issues them with a url link to follow and a temporary password. When theyclick this link, they are presented with a password reset page, that allows them reset their password. The applicant can also reset their password at any stage once logged in by selecting their name from the top navigation bar throughout the system and in the dropdown menu selecting Update Password.	
Hackney		eRecruitment	Please confirm that the solution will facilitate automated address entry, perhaps linked an address gazetteer or postcode based addressing system, for example the council currently operates LLPG address gazetteer; If compliant, please explain how this will work and the information source to be used;	Our solution integrates with Google Maps to automate address entry, making use of the most comprehensive global gazetteer available. Google acquire map data from many sources including local authorities such as Ordnance Surveys and Postal Services to ensure the most accurate and up to date information. Googles' API also offers great features such as Geo-Coding which allows us to get coordinates of each address and calculate accurate distances between locations. The API also allows us to show a dynamic map where the user can see if their information is correct through the movement of a pointer on the map which navigates to the address being entered. This is all automated from the users perspective, as they begin to type they will see suggestions by Google to auto-complete the address and once a full address is entered the pointer on the map navigates to those coordinates.	
Hackney		eRecruitment	Please confirm that the solution will check new users automatically to ensure that they do not have an applicant record already; Confirm on what basis a duplicate would be identified and account creation rejected.	The registered applicant will have a unique identifier number assigned to them tagged to their email address. The system automatically checks all new registrations against the unique ID's registered and if already registered, the applicant is directed to log in direct. The unique ID is based on their email address and no two accounts can be created with the same email address.	
Hackney		eRecruitment	Please confirm that the solution will generate a notification to applicants where they have a part completed application and the job is closing, auto-remibders should be generated as appropriate;	The client can choose what minimum percentage, profiles most be completed to before being considered a valid application. Applicants can be automatically prompted and encouraged to complete their profile and application with timed email alerts which trigger after registration i.e. after 3 days, after a week etc. and can contain marketing messages, easy to watch tutorial videos, guides etc.	
Hackney		eRecruitment	Please confirm that the solution will allow applicants to set up and manage job alerts that meet a range of criteria selected by the applicant. Explain the criteria avaiable and how the function works	The solution allows candidates to create and save any searchs to be saved for future job alerts. Applicants will receive automated alerts to their registered email address at a frequency as indicated in their Notifications Settings and will highlight any roles that meet their saved search criteria aswell as their matched ranking to the role. They can edit these favourites at any stage, save the jobs to their favourites folder etc. Alerts fields can be customised for the client but typically include options including keywords, location, county, company name, job type, category, industry, career level, education level etc.	

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Hackney		eRecruitment	Please describe any other functions that help to enrich the candidates' experience and support positive engagement with desirable target individuals/groups	With a personalised portal for each applicant, the Hire Lab ensures that each applicant is engaged with from the moment they submit their application. This portal mixes marketing with recruitment and offers an engaging and interactive experience. From welcome videos to team profile, overviews of sports & social clubs etc the applicant can receive a positive experience no matter the outcome of their application. With our talent pools, applicants are matched to each role that is published meaning now that their details really are 'kept on file' and are matched against every role. Once they receive a match, the applicant is alerted and encouraged to apply. Because they already have a profile, the application process is kept simple with an 'express your interest' option. The applicant can choose to record a profile video as part of their application. This can be great for applicants who might experience difficulties with written applications i.e. dyslexic applicants and allows them share their personalities with the hiring teams. Because of their personalised portal, the applicant knows where to come for all stages of the recruitment process and as it's fully branded for the client their experience with the brand is very positive and engaging. They can keep their profile uptodate and fresh and see where their application is throughout the process. All messages, alerts and communications are issued via email but always return the applicant to this dashboard for actioning. This allows the hiring team engage and communicate with their talent pools simply and easily.	
Hackney		eRecruitment	Please confirm that the solution will allow the recording and monitoring of website visits, requests for information, applicant activity including aborted applications, and other data of interest to the Council to be fed directly into an area of the application that can be monitored by the Recruitment Team.	All user activity, both candidate and reciuter, is maintained with The Hire Lab.	
Hackney		eRecruitment	Please confirm that the solution will allow the ability to track the media source used by the applicant, including job boards and Council website;	When a job role is created within The Hire Lab the user can choose the relevant advertsing channels. The Hire Lab automatically posts the job to these selected channels. Each channel is assigned a unique websire Link which allows us track and record the source of every application. This is also presented in a SOURCE report.	
Hackney		eRecruitment	Please confirm that the solution will allow the Council's recruitment team the necessary access to the applicant portal to troubleshoot and resolve issues reported by applicants;	Training can be provided to the Council on troubleshooting candidate issues as required. Recruitment team members can also create test candidate accounts whereby they can mimic any candidate user issue that may be raised. TexunaTech also provide a candidate help desk so any issues raised bby candidates can be raised driectly to the helpdesk.	
Hackney		eRecruitment	Please confirm that the solution will allow the Council's recruitment team the necessary access to carry out any necessary housekeeping routines on the applicant area of the application, e.g. deleting part saved or old applications; Please confirm which of these housekeeping routines can be scheduled to run automatically	Recruiters can manage candidates from within the Council hiring portal. For example you can cancel candidate applications, reset candidate tokens for automated video interviews, online assessments and so on. Where required automated scripts can be set to run on a periodic basis to do certain functions.	
Hackney		eRecruitment	Please confirm that the solution will allow "killer" questions to be used with the person specification or other job information to facilitate an element of automatic sifting and shortlisting / discarding of applicants; Please fully explain any features of the application which may aid or automate the applicant interview short-listing process;	Our solution allows users to specify additional killer questions at the following levels 1) a hiring program, 2) a specific job role and 3) an indiviual phase within a job. When creating a job the user can create as many hiring stages as required, associate a candidate action with moving to any particular stage as well as automating the workflow between stages. An example of autoated workflow could be as follows; any candidates that meet the minimum criteria for a job are auto moved to a sample first stage of the In Review hiring process. This stage could be an English Language online test; any candidates who complete and PASS the language test could be autom moved to an automated video interview; this could be automated to move on successfly completiong of the video to a psychometric assessment which could be automated to move any candidates to a face to face interview stage that pass the psychometric assessment.	
Hackney		eRecruitment	Please confirm that the solution will provide a summary of applicants for each job for use during the short-listing and interview process and will enable managers to input/code reasons for decisions reached at each stage of the process for each applicant, including access to the Guaranteed Interview Scheme;	For each individual job role the hiring team can choose to automatically move candiates through certain stages based on any preset criteria. They can also choose to move candidate manually through any of the hiring stages. Each candidate is presented as a candidate 'thumbnail' where you can see an high level summary of the candidate. You can drill down on any individual canidate to see their complete profile.	

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Hackney		eRecruitment	Please confirm that the solution will highlight candidate special requirements, for example, ; Guaranteed Interview Scheme, reasonable adjustments and flexible working;	All candidates can be asked on their application as to whether the have any special requirements. These can then be set at a program and/or job level for automatically moving candidates to a certain stage of the hiring process assuming they have met and of the other preset criteria.	
Hackney		eRecruitment	Please confirm that the solution will allow consolidated shortlisting, on a grid electronically which is auto generated and pre-populated with pre-defined essential criteria from the application form;	The hiring team can create the hiring stages for any give job or group of jobs and create an automatic workflow between these stages. For example the first stage may be candidates need a certain qualification, if they have this they are auto moved to the next stage. The 2nd stage may be to complete on online skills assessment, if completed and a minumum score achieved they are auto moved to the next stage. The 3rd stage may be to complete an English language assessment, if completed and the min score is achieved they are autmoved to the next stage, e.g. Shortlist. At each stage the hiring team members can vie the summary candidate thumnails and at any time they can drill down to see the full candidate profile. This can be provided in a grid as required.	
Hackney		eRecruitment	Please confirm that the solution will allow applications to be printed in bulk, with sensitive information excluded if so required.	The Hire Lab has the concept of a provate and public candidate profile. Any candidate profile attributes can be set to private as required. When viewing and printing candidate profile the public or private versions can be set by users with the required privileges. Candidate profiles can be printed in bulk.	
Hackney		eRecruitment	Please confirm that the solution will produce communications to applicants regarding interviews and automatically despatch them via email if required and confirm whether interview location maps can be automatically included in the e-mails;	The Hire Lab includes a messaging template manager where users, with the appropriate role and privileges, can define as many messages as required of various message types. Examples of message types are program welcome messages, job application messages, interview invitations, decline messages and so on. These system messages are automatically triggered when a specif event oocurs. For example if a candidate or group of candidates are moved (manually or automatically) to the interview stage they will receive a personalined and branded email with the details. This information will also be available to the candidate in their candidate portal as well as in their portal calendar.	
Hackney		eRecruitment	Please confirm that the solution will allow interview candidates to select their preferred interview time from pre-defined interview slots on-line and this to up-date the hiring manager and interview panel members calendars (if integrated with Outlook);	This is available both for individual interviews and group interviews. There are two options; Managed and Self Service. Usig the Managed setting the recruiters fill the slots, whereas when the interview job stage is set to Self Service the various slots are presented to the candidates for selection. Once slots are filled these will no longer be available. Everybody involved in a specific interview is automatically updated with the details through their email system as a vCalander invitation. The vCalendar email invitaion can then be accepted into the relevant calendar system, e.g. MS Outlook.	
Hackney		eRecruitment	Please confirm that the solution will allow interview the cancellation and rescheduling of pre-defined interview slots online;	All appointments (face to face interview, web call, etc) can be rescheduled and/or cancelled at the initiation of either a member of the hiring team or the candidate.	
Hackney		eRecruitment	Please confirm that the solution will monitor responses to interview communications and automatically highlight via messages to managers / recruitment / Human Resources;	The council can decide what constitutes notifications (e.g. interview rejections) and alerts (e.g. same candidate invited to interview for mutiple roles)	
Hackney		eRecruitment	Please confirm that the solution will manage administer and record all aspects of the offer process, conditional and unconditional, including for example, where an offer is not accepted, and record history of offers/changes made;	When a candidate is moved out of the InReview hiring stages to the Offer Folder, i.e. they are being made an offer, the hiring manager can complete the variable elements of the letter of offer, e.g. start date, etc. This is then automatically sent to the candidate. The acceptance status of the candidate is recorded (Accept, Reject, Under Review). In the Under Review status changes may be made to the Letter of Offer. All such changes are recorded.	
Hackney		eRecruitment	Please confirm that the solution will allow interview feedback online;	The Hire Lab facilitates the templating of an interview feedback form which can then be completed by all members of the hiring team.	
Hackney		eRecruitment	Please confirm that the solution will facilitate consolidated interview feedback, i.e. on a grid.	Assuming more than 1 hiring team member is involved the interview feedback form can be rolled up into a single summary form.	
Hackney		eRecruitment	Please confirm that the solution will facilitate use of multiple and different types of selection test, e.g. (but not limited to) interview, exam, psychometric test;	As part of the InReview hiring process for any job the hiring team can create any number of hiring stages. The hiring stages can include appointments (face to face interviews, telephone interview, etc), assessments (language, automated video, skills, psychometric, etc) as well any number of stages allowing candidates to provide additional information, e.g. Referees, etc.	
Hackney		eRecruitment	Please confirm whether interviews can be set up in bulk.	This is available both for individual interviews and group interviews. There are two options; Managed and Self Service. Usig the Managed setting the recruiters fill the slots, whereas when the interview job stage is set to Self Service the various slots are presented to the candidates for selection. Once slots are filled these will no longer be available. Everybody involved in a specific interview is automatically updated with the details through their email system as a vCalander invitation. The vCalendar email invitaion can then be accepted into the relevant calendar system, e.g. MS Outlook.	

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Hackney		eRecruitment	Please confirm that the solution will build and send contracts, at conditional and unconditional offer stages, using information from the applicant tracking system;	Through our onboarding module, hiring teams have the freedom to structure the onboarding process at a job level, This allows every candidate marked as offered/hired to go through a customised onboarding process. This includes contract management. From a library of contract templates, the recruiter can choose their chosen template, personalise and ammend the content and issue it to the candidate for digital signing or print off a pdf version for return.	
Hackney		eRecruitment	Please confirm that the solution will select and make available appropriate policies, procedures, terms and conditions and other work related instructions / documents pertinent to the post applied for to the new recruit;	The onboarding module allows for flexible processes and can be defined at job creation stage or at anytime throughout the process. The module allows for any form of media to be shared with the candidate from training manuals, health and safety documents, training videos aswell as promotional material, imagery, staff profiles, office maps etc.	
Hackney		eRecruitment	Please confirm that the solution will allow for configuration and set up of a range of other onboarding related tasks, such as (but not limited to) identification cards or badges, system access requests, usernames, passwords, to be initiated from the solution so they are ready on the new employee's first day of employment; If compliant, please explain how this will work.	The onboarding module allows the recruitment define the onboarding process for the role. This can be presented to the candidate within a self-service environment that they access via their personalised portal. Tasks and actions can be assigned to the candidate and the hiring team can decide whether these need to be completed pre or post start. Any time based actions are integrated with the candidate's calendar and activity tab. Any delays or roadblocks are flagged to the assigned owner within the hiring team.	
Hackney		eRecruitment	Please confirm that the solution will include an objective scoring mechanism that enables those evaluating applications to assess candidates in a fair and impartial way;	The system allows for scoring and ranking of candidates at any stage throughout the process. This can be driven from automatic matching i.e. grade of matching to the hiring requirements or via a manual scoring system within the hiring team. Candidate scoring can be done via a variety of options that the client can choose from simple 1-5 star ratings that the hiring team engages with to rank a candidate, to combined scoring based on combinations of scores collected throughout the hiring process i.e. combination of match score, result of assessment, score from technical test etc, Our assessment module also allows for clients to set their own scoring methodology and for this to be available at any stage within the hiring process i.e. compentancy based template that the hiring team complete after face to face interviews etc. Comnined scores from this can then be tagged with the candidates profile.	
Hackney		eRecruitment	Please confirm that the solution will facilitate the production of comprehensive reporting information to substantiate compliance with equality and diversity legislation.	The system offers full analytics and profiling for the client. With over 25 standard reports and then bespoke reporting created at implementation allows the system be configured to suit whatever KPI and anayltics required. These reports can feature any element of data gathered from profiling of talent pools, skills gaps etc to sources of applications, equality and gender balances etc. Reports can also be generated from user defined fields and saved for future reporting etc.	
Hackney		eRecruitment	Please confirm that the solution will retain on file pre-screened candidates who can be identified and contacted should posts similar to the one they unsuccessfully applied for become available;	The system offers clients the ability to create talent pools and groups within these pools. These tagged groups can then be used within the hiring requirements to generate matches against a role or be accessed directly under the candidate tab and searched for under tagged groups.	
Hackney		eRecruitment	Please confirm that the solution will provide the ability to group applicants into distinct groups / pools by reference or filtering devices to facilitate simple searching for suitably qualified candidates. Target communications / invitations to apply and job alerts accordingly with the ability to report on responses.	The system offers clients the ability to create talent pools and groups within these pools. Candidates that reach certain stages within the hiring stages can be automatically tagged and added to specific groups within these pools. These tagged groups can then be targeted directly with marketing communications, alerts and updates. Matches will be automatically communicated to them and all communication is tracked and trace so the hiring team can see the level of enagement from the candidate, view reports on activity etc.	
Hackney		eRecruitment	Please confirm that all fields are easily reportable on including user defined fields:	The system offers full analytics and profiling for the client. With bespoke reporting created at implementation allows the system be configured to suit whatever KPI and anayltics required. These reports can feature any element of data gathered from the profiling of talent pools, skills gaps etc to sources of applications, equality and gender balances etc. Reports can also be generated from user defined fields and saved for future reporting etc. These reports can also be set with timed releases so reports can be emailed out to defined users at set dates and times.	

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Hackney		eRecruitment	Please confirm that the solution will produce both regular and ad-hoc reports on all information fields. This will include for example: • Number of vacancies over a specified period • Numbers of adverts placed by department, job type, response rates and cost • Media analysis and cost effectiveness • Job packs issued and application forms received by department, job type, method of distribution etc. • Recruitment events – response rates • Equality and Diversity monitoring by ethnicity, age, gender, disability, locality, etc. at all stages of the recruitment process. • Time taken to recruit each post • Number of redeployees successful in applications • Web site hits • Unique URL reporting where jobs are posted on an external website • Aborted applications, where details are downloaded but no application is made • Reports on any rechargeable recruitment costs such as DBS checks to allow internal recharges to be made; Please address each element above and confirm compliance; list any additional similar tasks your application can assist with	All these suggested reports are included in our standard reporting module. These include: • Number of vacancies over a specified period, location, department etc • Numbers of adverts placed by department, job type, response rates and cost aswell as matches both from direct application aswell as from existing talent pools. • Media analysis and cost effectiveness across media channels. • Job packs issued and application forms received by department, job type, method of distribution etc. These can be sliced and diced to include any user defined elements. • Recruitment events – response rates and level of engagement • Equality and Diversity monitoring by ethnicity, age, gender, disability, locality, etc. at all stages of the recruitment process. • Time taken to recruit each post with breakdowns across all the stages, hiring teams involved and any roadblocks. • Number of redeployees successful in applications • Web site hits • Unique URL reporting where jobs are posted on an external website including number of applicants, social media shares etc. • Aborted applications, where details are downloaded but no application is made aswell as reports on number of candidates across the various application stages i.e. registered but didnt complete application, application in draft but not submitted, submitted applications but not a match etc. • Reports on any rechargeable recruitment costs such as DBS checks to allow internal recharges to be made • Any bespoke reporting required.	
Hackney		eRecruitment	Please confirm that the solution will include an advanced search facility;	Recruiters can search candidate profiles using either a basic or advanced search facility.The solution has an extensive search facility built into the administrator menu. This is fully customisable and can be extended to facilitate the most accurate search and rate results. The advanced search facility allows the employer search across every field and data point including keyword search. Search fields can include but are not limited to; • Location including GPS positioning to allow employers search within a radius of a specific location i.e. postcode etc. • Education - an extensive list of general areas of study, institutions, courses, subjects • Availability for work - a calendar will offer dates to select so an employer can choose to only search for candidates that match their requirement i.e. Available Immediately. • Experience – this can include years of work experience, number of roles, areas of expertise, specialising in etc. • Visa status / Drivers Licence / Language (including level) etc. • Keyword search allows for specific words or terms to be included in the search. The more specific the term the more accurate the results will be.The system allows the employer enter multiple keywords to allow for powerful matches. This interface removes the need for employers to know complicated search formulas typically used to search data such as 'Boolean String' search, which only the experienced recruiter would be familiar with.	
Hackney		eRecruitment	Please confirm that the solution will provide relevant information for the Office of National Statistics monthly vacancy monitoring return;	Yes this information can be gathered into a specific report that can be used for the monthly monitoring return and would be available to be shared automatically or via download into which required format i.e. cvs, pdf etc.	
Hackney		eRecruitment	Please confirm that the solution will report Council new starters to Job Centre Plus for matching against their referrals and return of results into the system to calculate, for example, percentage of appointments for each job type which come via Job Centres;	The system can calculate any type of activity from specific sources and track the results throughout the system and compile specific reports. The Job Centre Plus referrals could be setup as an additional channel for attracting talent and these channels are monitored throughout the hiring process so the client and external agency i.e. Job Centre Plus could see the analytics associated with their candidates i.e. how many were hired, the numbers that progressed through the different stages, how many were rejected at each stage etc.	

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Hackney		eRecruitment	Please confirm that the solution will report via automatic triggers to the recruitment team and managers when key events happen, e.g. (but not limited to) advert closed, chase shortlisting;	The system can be configured to alert and set tasks to users based on different triggers and actions. These can include timed processes i.e. score candidates after an interview or can be used to highlight roadblocks, delays etc.	
Hackney		eRecruitment	Please confirm that the solution will facilitate entry of information at point of receipt (including remote locations) by line managers, administrators or applicants and prompt subsequent actions to be taken with the information at all relevant points in its life cycle;	The system facilitates entry of information at multiple points of receipt by any of the hiring teams, administrators or applicants. The applicants access their personal portal and are directed to the addition of the required information. Any addition of information can be linked with actions and tasked and this is controlled by the hiring teams and administrators.	
Hackney		eRecruitment	Please confirm that the solution will date stamp and record the date at various points in the recruitment cycle;	All data created, entered and manipulated within the system is time and date stamped. This allows any information be reported and analysed.	
Hackney		eRecruitment	Please confirm that the solution will allow the Recruitment team to select the points which they consider to be significant and customise the date stamping accordingly, e.g. closing date of vacancy to date of unconditional offer;	The hiring team have full access to all hiring stages and time specific elements to the hiring lifecycle at a job level. These stages can be assigned time and date specific tags which generate specific actions i.e. closes the role for applications, highlights overdue actions, flag actions to owners, alert the applicants etc. These actions can be automated or be generated manually.	
Hackney		eRecruitment	Please confirm that the solution will generate and administer event driven auto-prompts and/or exceptions or warnings to relevant managers/officers; Please specify the methods available to notify this information, e.g. on screen and/or via exception reports, at the time of data entry and/or subsequently in accordance with pre-determined profiles;	The system generates event and time driven auto-prompts and alerts to relevant members of the hiring teams and applicants. These alerts popup in the dashboard when the hiring member logs in, is flagged from every screen from the top right of the page and they also recieve the alert via email. SMS alerts can also be harnessed if required. These alerts can be manually driven or linked to automated actions.	
Hackney		eRecruitment	Please confirm that the solution will allow vacancies to be put on hold and generate appropriate correspondence automatically when such action is taken and if or when vacancies are released;	The system allows hiring teams to move a vacancy into draft/hold at any stage and generate appropriate correspondence to any relevant user (hiring team, applicant etc) automatically andalso highlight updates if or when the vacancy is released. All hiring data is retained and stored against the role for audit and tracking.	
Hackney		eRecruitment	Please confirm that the solution will allow fields to be merged into Word, Excel and Outlook	The system allows for data to be extracted and saved in multiple formats i.e. pdf, excel, csv aswell as data exports for calendars such as outlook.	
Hackney		eRecruitment	Please confirm that the solution will allow the printing of standard letters / correspondence with customisable elements, related to relevant events or transactions in the system and retain and attach these to applicant records;	The system allows for the exporting of documents with customisable elements,fields, dates or actions from within the system and save and attach these to applicant profiles.	
Hackney		eRecruitment	Please confirm that the solution will record in separate fields information on applicants' visas, sponsorship and immigration status;	The solution records in separate areas of an applicants profile any type of information required by the hiring team i.e. visa details, references, copies of identification etc.	
Hackney		eRecruitment	Please confirm that the solution will allow system administrators to customise and configure fields, menus, tasks and screens, including creating user defined fields;	The system is modular based and designed on a flexible framework. This allows administrators design the system to suit their needs. It also allows hiring teams customise and configure their own system with flexible workflows, fields, menus etc	
Hackney		eRecruitment	Please confirm that the solution will allow system administrators to link and sequence screens for key tasks and repetitive processes;	With the job template feature hiring teams can create the job template once and then create multiple jobs harnessing this template content. This can contain everything from hiring requirements, job profile to the hiring stages and hiring sequences. These can be kept manual or automation can be used for any/all of the stages. This can be setup once in a template and then used for any role and be tweaked and ammended at any stage.	

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Hackney		eRecruitment	Please confirm that the solution will allow for applicants to be moved in bulk through recruitment stages;	Candidates can be moved in bulk through the various stages are automatically or manually as ditated by the specific job hirng process.	
Hackney		eRecruitment	Please confirm that the solution will allow the export of lifecycles, application forms, correspondence, workflows, reports, from test to live and vice versa;	The Hire Lab allows users to create draft templates, jobs, hiring stages, automated workflows, etc in draft format within the portal. Once ready to go live these are 'published' within the system.	
Hackney		eRecruitment	Please confirm that the solution will allow notes to be recorded at each stage of the recruitment process.	Comments can be recorded at any point in the process.	
Hackney		eRecruitment	Please confirm that the solution will allow the Council to control e-mail branding with HTML and have different e-mails for different parts of the organisation	The email templates managers facilitates the creation of a many meesages as required per message type. Each message can be worded and branded as required.	
Hackney		eRecruitment	Please confirm that the solution will give the ability to track and store correspondence to and from the applicant;	All correspondece with candidates is recorded, stored and maintained. This includes system messages automatically sent to the candidate as well as any custom messages manually sent to the candidate. A candidate can respond to custom messages through their candidate portal and all email threads are maintaine. Beyond this all candidate activity (direct and indirect) is logged as a full audit history of the candidate.	
Hackney		eRecruitment	Please confirm that the solution will give the ability to pre-assign eforms (e.g. feedback form) to specific communication templates;	This facility will be added.	
Hackney		eRecruitment	Please confirm that the solution will give the ability for workflow to accommodate simultaneous steps, both independent and also dependent, and to configure each step to either trigger the next step/other actions automatically, or trigger a notification for a task to be done, or trigger nothing as required	When creating a job the user can create as many hiring stages as required, associate a candidate action with moving to any particular stage as well as automating the workflow between stages. An example of autoated workflow could be as follows; any candidates that meet the minimum criteria for a job are auto moved to a sample first stage of the In Review hiring process. This stage could be an English Language online test; any candidates who complete and PASS the language test could be autom moved to an automated video interview; this could be automated to move on successfly completiong of the video to a psychometric assessment which could be automated to move any candidates to a face to face interview stage that pass the psychometric assessment.	
Hackney		eRecruitment	Please confirm that the solution will give the ability to assign workflow steps to internal and/or external parties and for those parties to make decisions/ feedback on outcomes online;	All activity, triggers, activites, etc are assigned at a Hire Lab registered user level. These users can be internal or external provided they have been registered and authenticated ther Hire Lab account.	
Hackney		eRecruitment	Please confirm that the solution will provide the ability to configure e-mails to alert participants in the recruitment process when a task has been assigned to them	This facility is supported via The Hire Lab email templates manager. For every message tyoe you can have more than one version of message. For example if you were to have a 2 stage interview process for certain roles both would use the Face To Face Interview message types but you can have one version of this with content for the 1st interview and different content for the second interview. All of these system messages are automatically triggered and sent by the system.	
Hackney		eRecruitment	Please confirm how the Provider achieves keeping up with the latest trends in the recruitment market, how you do this and how have your insights led to innovative system enhancements to help clients attract the best talent and ensure a smooth, efficient user experience for all roles – please give some specific examples This should be a clear response, Sales documentation will be rejected.	With quarterly product releases, the Hire Lab is continiously striving to innovate. Through our pathfinder programme, clients are able to influence and partner with us on the development of our roadmap. From inception, The Hire Lab has been built in partnership with our clients and through their suggestions and feedback we are able to tailor our product to the market needs. A real example of this is from listening to our clients frustrations around candidate experience. Applicants are looking for instant engagement and transparency within the hiring process. Through working with our clients, we have been able to develop a unique candidate experience that allows our clients mix their promotional and marketing messages with their hiring needs to their talent pools. By sharing videos, imagery and knowledge, clients can now offer a memorable experience personally to each applicant. This partnership ethos has also enabled us to build talent-centric modules such as our self-service calendar management solution, our onboarding module etc. We are constantly listening to our clients, many who are industry leaders, and feeding this back into our product development.	
Hackney		eRecruitment	The Provider must maintain such systems and records to show that the standards and performance requirements detailed in this section have been met. The Council may, on an ad-hoc basis, call for additional detailed evidence to support reports outlining standards and performance requirements.	All requirements in this section will be fully met.	

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Hackney		eRecruitment	Statistical data must be submitted on a monthly basis to the Contract Manager, within 6 working days of the month end, to enable the evaluation of performance and determination of service credits due under the contract.	Various KPI's can be provided to the contract manager including but not limited too; System Availability, Help Desk Activity, Technical SLA commitments, Call Sheets, etc. These will be provided withing 6 working days of each month end.	
Hackney		eRecruitment	The Contract Manager must inform the Provider in writing of any requests for additional system functionality or reports where the Providers assistance is required. Typically, this will consist of an output based specification outlining the specific areas where the Provider's expertise is required. It should be noted that, where the Provider is asked to provide resources, any costs arising from such system functionality changes or reports will be chargeable to the Council, excluding the cost of preparing a quotation for the change. The Provider must deliver a completed responses within 8 working days of request; this deadline may be extended where the Provider seeks further information, by the number of days the Council takes to respond to the Provider's enquiry. The resource must be provided within six calendar weeks of the delivery of the Council's acceptance of the Provider's proposal.	This can be handled using our standard Change Control Procedure.	
Hackney		eRecruitment	The Council is extremely keen to pursue an approach to the work detailed in paragraph G3-1 above on a shared risks and rewards basis, so that certainty of delivery of a change that meets the output specification, right first time, can be better guaranteed. Typically this would involve an element of payment to the supplier for resources employed being dependent upon the successful completion of the work and its deployment into live operations. Suppliers should outline here their response to this requirement and a suggested approach	Agreed. Typically as part of the remit of the Change Control Board (CCB) which would include staff from both TexunaTech and Hackney Council. If additional work is requested then schedule, budget and level of quality are determined. A Change Request is filled out and submitted using a standard template to be approved by the CCB. As part if this process a payment plan will be agreed which will allow retention of an agreed percentage of the project budget by the Council pending successful live deployment of the additional features or reports.	
Hackney		eRecruitment	Where a problem with the live, test, development or training application is identified either by the Council or the Provider, which has or is likely to have a significant effect on the Service, the problem will be assigned a priority level. In the first instance this will be a description of the symptom and all reasonable endeavours will be made to inform the named representatives from each party as quickly as possible (in the case of the Provider, the Account Manager, in the case of the Council, the Contract Manager)	We will maintain a live summary of the severity of issues raised and their disposition (open/fixed/non-reproducible). Issues are assigned a Severity rating in alignment with international TISO9000 standards, i.e.: • Severity 1 - "show-stopper" • Severity 2 – "serious" • Severity 3 – "annoying" • Severity 4 – "cosmetic"	

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Hackney		eRecruitment	The named representatives will 'own' the problem until resolution and together will agree a course of action to analyse, identify, isolate and resolve the problem. These details will be logged on a Call Sheet completed by the Provider and will include target resolution times, actions and their associated deadlines.	Call Sheets will be created for all technical issues raised.	
Hackney		eRecruitment	Where any mandatory system upgrade routine after installation into the live system released by the provider as "tested and fit for purpose", is proven by the Council not to work in a significant way (defined as causing serious disruption to functionality, processes or system users) due to Provider error / negligence, then it shall be fixed by the Provider, at the Providers expense, within 12 working days of the Council logging a call (Council severity 4).	We actively work with the client to provide a workaround for any such issues within one working day and to provide a fix based on best endeavours, on the next working day which is well within the 12 working day requirement.	
Hackney		eRecruitment	In the event of a severity level 1 problem, the Provider may be required to attend an emergency problem management meeting or a conference call at short notice. This meeting may be called by the Council's Contract Manager when ownership of the problem is unclear, or when ownership is clear, but a resolution is not forthcoming. The Provider must work continuously and pro-actively to resolve all severity level 1 problems until such time that the problems are resolved. Once a severity level 1 problem has been resolved, the Provider will be required to provide a brief written report in electronic format by 12:00 hours the next Working Day. This report will be sent to the Council's Contract Manager and will contain the following points: • A description of the problem • The cause of the problem • Actions were taken to resolve the problem, including when and by whom • Conclusions, detailing any future pre-emptive measures the Provider or Council should take	The TexunaTech support manager will be the nominated point of contact for these meetings. Thesupport manager will also liase with the internal Hire Lab technical team to progress provlem resolution as well as continuing to advise the council of ongoing problem resolution status. The required report will be provided to the Concil of completion of the problem resolution.	
Hackney		eRecruitment	The hosted application service must be available in full as a minimum for 24 hours per day 7 days per week every week (the Service Hours). Anything less than full availability counts as the application being not available.	The Hire Lab system is hosted on the Microsoft Azure platform. Each layer of the Microsoft Windows Azure platform infrastructure is designed to continue operations in the event of failure, including redundant network devices at each layer and dual Internet service providers at each datacentre. Failover is in most cases automatic (requiring no human intervention), and the network is monitored by the Network Operations Centre 24x7 to detect any anomalies or potential network issues.	

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DfE		Adoption Register	Bidders shall ensure that they: *Provide a Solution Design Diagram with a suitable commentary describing (at a minimum): - the technology stack its components are based upon; - the data consumed and exported; and - integration with other services and solutions. *Develop and deliver a solution that is flexible enough to accommodate any future changes, where appropriate, based on legislative or other requirements; *Provide a full Solution Design documentation set that includes (but is not limited to): a High-Level Design and Low-Level Design that can be submitted for evaluation to the Department's governance processes as and when required; and *make explicit reference to any and all licensing of 3rd party services (and the cost of these must be included in the cost-model).	https://docs.google.com/document/d/1hIJvpfmi6PlH06wPVUzmDILyk2MQXYcXJJAaIXWjYqc/edit	
DfE		Adoption Register	Bidders shall ensure that *They will collaborate with the DfE to develop and deliver a business process for user registration; and *Their solution provides a safe and secure user registration service to support the business process;	https://docs.google.com/document/d/1AfR_2ONhEJ7RISnhi2wLT2HDUAFdUlpPZQZ2PJrf-Do/edit	
DfE		Adoption Register	Bidders shall ensure that their solution: *Can integrate fully and interoperate with the Department's current and any future SSO authentication services that are based on Open Standards; *Can integrate fully with the GDS Verify authentication service (for more information see: https://govuk-verify.cloudapps.digital); *Ensures that every user has to accept the Department's terms and conditions prior to logging in; and *Facilitates access to the solution for DfE and other users using Open Standards and standard protocols. [1]	https://docs.google.com/document/d/11E3tnxHEoQQgZvYPg5sKA9StVNpdGhQxOpt_7hY44Xk/edit	

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DfE		Adoption Register	*Bidders shall ensure that their solution can facilitate the logical grouping of users and the allocation or removal of access rights to information and functionality based upon these groups. These shall include, but are not limited to: - Adopters; - Admin users within Local Authorities, RAAs and VAAs; - Support staff; and - DfE policy staff (according to business rules); *Bidders shall ensure that their solution can facilitate: - The creation, updating and deletion of users and groups (and ensure that it remains aligned with the DfE's authentication service where applicable) by users with appropriate privileges; and - Facilitates the removal of users after an agreed, configurable time limit.	Administration rights and permissions Texuna use a tried and tested hierarchically based security model similar to the Windows LDAP schema. This enables an extremely high degree of granularity in the setting of access rights with simplified management. Access can be assigned to datasets, reports and system screens independently. These rights are set on a group basis as best practice, but can also be allocated individually if required. There is no limit to the number of groups or individuals that may be established. Therefore all the groups identified by DfE, and more, can easily be setup. Three types of access rights can be granted under this schema: *Edit – Allows the User to create or modify data, and view in an e-form; *Create – Allows the User to create and view an e-form; and *Read – Allows the User to view an e-form. A back office management function allows administrators to manage or delegate management of users, groups and access permissions. User Groups allow access permissions to be maintained at Group level. Groups may contain Sub-Groups with permissions inherited from the Parent group. Users and user groups on each level may have permissions set up explicitly. Users need to logon with individual usernames/passwords to access the system, and support for MFA/U2F is also available for second factor authentication. Relationships are shown in the diagram below: <insert diagram> Management of groups and users includes the ability to archive users and groups that are no longer used. Typically full delete is disabled to protect the audit trail and maintain change history of records in full. Actual deletion can be enabled as a separate process for a restricted subset of super-users so that the requirements of GDPR are respected, ensuring personal data is not retained longer than needed. Texuna will work closely with the Department to ensure the final configuration is fit for purpose with clear and unambiguous processes. Safeguarding issues / data protection Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following mechanisms are proposed as a minimum: *Secure hosting – Texuna propose to host on Azure which is fully compliant with GDS guidelines. *Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition: - All data transmitted between the browser and the server via encrypted channel (SSLv3) - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply: ** encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256 *A least privileged access control policy; *Strong password policy with the ability for users to change password if needed. * Step-up authentication with MFA for power users	

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	*Bidders shall ensure that their solution can facilitate the searching of adoption data based on (but not limited to) the following criteria: - Age; - Gender; - Ethnicity; - Religion; - Location; and - Health conditions. *Bidders shall ensure that their solution can facilitate the searching of the AR by user groups, including (but not limited to): - Adopters; - Admin users within Local Authorities, Regional Adoption Agencies and Voluntary Adoption Agencies; - Support staff; and - DfE policy staff (according to business rules). *Bidders shall ensure that their solution can facilitate the searching and managing of AR profiles for user groups, including (but not limited to): - Admin users within Local Authorities, Regional Adoption Agencies and Voluntary Adoption Agencies; and - Support staff. *Bidders shall ensure that their solution can facilitate the refining of AR search criteria via the appropriate filters to enable a 'search within these results' function; *Bidders shall ensure that their solution can allow users to configure how much information is displayed on screen when the AR (and other) search results are returned;	Texuna has an extensive history demonstrating the ability to allow for searching of various data across a range of fields and records - but structured and unstructured from databases, log files and from case document artefacts. We do this in purpose built applications (DfE, Department of Finance in Ireland, DfE formerly the NCTL, OfS NSS, Ofsted etc.) as well as general data pipelines and data warehouse projects with Business Intelligence requirements (e.g. Jisc, Oxford Brookes University and London Metropolitan University). Texuna can leverage existing patterns and libraries, mostly built on open source code, to provide the desired solution for the Adoption Register. The following provides an overview of how we facilitate searching, filtering and matching of data across a number of public sector projects. In each case different numbers of fields (structured and unstructured) are available for search refinement and/or information display. An example of what can be provided for the Adoption Register is shown in the screenshot herein. The DfE GIAS application allows for users to search, with results updating in real time as they choose the filter options that best meets their needs. The GIAS application also allows for the use of pre-defined search results for particular user groups, so that those users can be displayed only relevant data when they first log in. GIAS users can use the search functionality to save their own pre-defined searches if needed. The Secure Access application allows users to search across a range of fields and field types. Searches are made against user details and group details. The searches can be made using one, some or all of the search filters available. Searches can be made on fields that are pick lists, free text or dropdowns. Search results are pre-filtered to ensure users can only see fields and results that they are entitled to, based on their user group and account type. Searches can be made on the group level based on the users contained within them (e.g. search for all groups that have at least 1 user with access to group X). Secure Access also includes additional functionality that allows users to search for entries that DO NOT meet certain criteria (e.g. all users who do not have access to group X). The DfE Initial Teacher Training DBMS (ITTDMS) allows users to search across multiple entity types, including users, records, groups and so on. The search results on this application are based on the user's permissions, so some users will be able to see more than others (e.g. admins). The application allows users to search on a range of field types, including free text, pick lists and drop-downs. The ITTDMS application also allows users to search on text fields using options 'Like' (i.e.. the text is contained somewhere in the field), 'Starts With' (i.e. the field must start with the contents of search field) and 'Exact' (i.e. the search term must match exactly what the record is). The ITTDMS application has further functionality that allows users the ability to search in specific snapshots (e.g. searching for users based on the details as per the night of 01/07/2018), to search for records deleted on or before a certain date, deleted after a certain date or edited on a date (as per deleted). The Department of Finance (Ireland) allows legal experts to index and analyse 10's of terrabytes of documentary case data from emails, attachments, file systems, archives, and legacy systems through a read-only object store. This includes the ability to do pre-processing of non-text files to convert images, PDFs and other file formats into indexable, searchable text. The service allows end users to apply fixed flags, user defined tags, or add annotations to document artefacts for the purpose of creating cases and managing legal disclosures. It also includes the ability to redact documents, with manual or automated redaction across a given case. The solution used GDS front end libraries to give an accessible UI, with various keyboard shortcuts for document review productivity enhancements, as well as various ways to customise and memorise screen display preferences and information layout at different points in the workflow. It also includes the ability to use stop word dictionaries and to create custom dictionaries for a taxonomy to be applied across the document collection. The OfS NSS results dessimination application allows universities to view and analyse the results of the National Student Survey including looking at student level comment fields. This annual publication is always eagerly anticipated by university data analysts as they chase evidence of their university performance or defend their position in any fall in ratings. Texuna has provided a realtime interactive cloud platform to make millions of new student anonymised data records available for search and analysis online through a browser. Analysis can be filtered by course, lecturer and a number of other user defined fields, and benchmark groups can be established for comparison purposes. IMAGES ADDED TO ATTACHMENT 4 DOCUMENT FOR REVIEW	

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	*Bidders are invited to submit proposals for how their proposed IT solution would deal with searches for Court reports *Bidders shall ensure that their solution can facilitate the searches of Court reports by user groups, including (but not limited to): - Admin users within Local Authorities, Regional Adoption Agencies and Voluntary Adoption Agencies; and - Support staff;	Texuna will use full text search alongside cloud APIs where available to deliver the required solution. Texuna understand that the mahority of relevant court information may not be directly available in digital form. In this case a facility will be available for case workers to upload digitised copies of relevant legal documents. Where electronic versions of relevant data (e.g. bankruptcy / solvency judgements, criminal record search etc.) is feasible and available, then an API integration will be used to automatically collect the relevant data. Texuna is an experienced system integrator and open standards solution provider. We build solutions that are engineered to be interoperable and to support the integrations required. For example it may be feasible to subscribe and extract data from Lexis Nexis, Bloomsbury, Thomson Reuters, The Law Page or JusticeOne. Once the data is available, the granular permissions structure will be configured to ensure that access is managed and controlled via defined user groups and/or user types/regions etc. Therefore the court report search will be restricted to authorised users, such as social workers, so that they are able to interrogate the Adoption Register for details about families based on data already in the register. The ability to access the detail of court report records is restricted only to those users who need to have access (e.g. authorised social workers). Searches and views of family information will be subject to full auditing to track usage included within MI reports. Court Report searches may be complex and enable the social worker to interrogate the family records by a number of sensitive data fields. The Texuna approach will use a combinations of filters to give the user control over their search criteria and enable them to create a very specific search if required. Any number of filters may be defined and displayed in a similar manner to the screenshot from GIAS below. We envisage many filter boxes in the left menu to provide the user with the flexibility that they require (GIAS enables only a filter on school type and sort order to be chosen.) < insert image from https://drive.google.com/open?id=1uOxpYjjNQZ-SLNAcVbYuJMeE_6xYou7d> Subject to security restrictions, report results may be downloaded, so that matching data can be extracted. The data which is able to be viewed and used will be restricted by user group so that some groups may have a more filters to use and will be able to view and download more data than other groups. At all times the regulatory and policy restrictions of the Departments terms of use will be adhered to so that confidential data is not exchanged or passed on.	

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	*Bidders shall ensure that their solution can facilitate: - The management of events that take place, including (but not limited to): - Exchange Days for Adopters - Activity Days for Adopters; and - Exchange Days for Professionals. - Activity days for Professionals *The communication of event information for the different events that take place via channels that may include (but not be limited to): - Email; - Alerts; and - SMS.	Texuna understands the importance of Goverment initiatives to increase public awarness in the area of adoption. National Adoption Week is one of the biggest adoption awareness raising initiatives in the UK. These initiatives include support on social media using the hashtag #SupportAdoption and wealth of information on the First4Adoption website for agencies and for people considering adoption as a means of growing their family. Texuna will work with the Department and do further User Research to determine the real needs and process to be supported to maximise the impact of event management. Texuna initially propose to integrate the Adoption Registry solution with existing channels and establish new ways to reach all target user groups: -People considering to become adopters -Adopters -Users within Local Authorities, Regional Adoption Agencies and Voluntary Adoption Agencies; -Support (admin) staff; and -DfE policy staff; Event management support will include online features: * Service Manager creates an event via online form * User Subscribes to notifications about adoption events' form People that are not already registered users of the portal can provide contact details and receive more information about adoptions and events without necessarily completing an online registration. Target audience engagement via notifications may include events like: - Exchange Days for Adopters - Activity Days for Adopters - Exchange Days for Professionals - Activity days for Professionals Event management can include support for capturing the names and contact details of prospective Adopters that attend such events. Further research may be needed to understand how to do this most effectively. It may be worth testing if a closed social network would help bring together the various interested parties to progress discussions that might subsequently lead to a successful registration. Power users will register each event using a backoffice form providing event date, description, target user groups and other information. Power users may manage the events schedule through an event manager widget. <<insert image here>> https://drive.google.com/open?id=1Gl3TxYVmEcFZ34js7znK9Yb_YJMz9Qfc Import events Texuna will provide bulk event import functionality to help power users and agencies to upload data about 3rd party agency events. An Excel template file will be available for download from the backoffice. Agencies will complete the template with a series of events and upload the completed template via a Bulk Upload feature. Alternatively the completed template can be sent to support staff for upload. REST API intergration is also possible with agenices if deemed useful following further research. User notifications Events will be published through the Adoption Registry "Annoucements" page which in turn makes them accessible to seach engine indexing bots. In this way the event listings can be returned in search engine results for related queries. Event announcements can also be made available via RSS feed. A RSS web feed allows users to access updates to online content in a standardised, computer-readable format. In addition, Twitter posts can be automated with the #SupportAdoption hashtag to accompany publication of events on the portal. Subject to receiving the necessary cabinate office approvals, the GDS Notify service could be used to deliver email, SMS and letter notifications to users in the GOV.UK standardised way. Such approval should be requested. Alternatively SMS and email notifications can be delivered via API integration with Twilio and SendGrid services which are approved for Azure. Texuna already integrate with Twillio and SendGrid for the CheckMate mobile app in Ireland for community neighbourhood watch. All notifications will have to provide open calendar format and Google Calender/iCal links making it easy for recipients to schedule and track event in their personal Calendar services. This has been shown to significantly improve the user experience and engagement. Integration for events distribution By using the Azure Service Bus as an integration bridge to 3rd party APIs - it establishes the default route to link to any existing or potential future DfE Enterprise service bus and/or other departmental applications and services. This gives a future proof and scalable approach to distribute notifications about new events across department systems and/or independent 3rd parties. Service Bus message queues can integrate applications or components that span multiple communication protocols, data contracts, trust domains, and/or network environments.	

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall ensure that their solution can facilitate self-referrals to the AR from approved adopters by capturing, processing and submitting mandatory and optional information (see Annex i: 4.1). These shall include, but are not limited to: *Applicant and Agency Details. *Matching Considerations. *Family Members. *Specific Matching Considerations. *Employment, Pets and Accommodation/Neighbourhood. *Photo & Video. *Family Profile. *AR User Details. [2]	Texuna works across a range of projects that demonstrates the skills, knowhow and lessons learned to deliver a flexible self-referral registration and matching service. In particular, Texuna is a technology partner for Indeemo, a mobile ethnographic service for market research agencies to capture pictures and videos (Instagram style) for in-situ self-observation and self-reporting style qualitative research. With Indeemo we have helped process 100's of thousands of pieces of content across thousands of projects for hundreds of clients. The content includes tasklists and eForms for submitting data to Indeemo in an organised workflow that creative agencies use to curate their user research. The application includes a sophisticated dashboard to translate audio to searchable text, automatically float keywords etc. Indeemo grew out of the Tweekaboo project - a closed social network for new moms to share moments with their closest family and friends in a curated family diary. We therefore have significant user experience with media and video content. Texuna also worked with the Department of Finance in Ireland to create an eDiscovery and eDisclosure application (using GDS front end libraries to create a Single Page App). This uses sohpisticated matching techniques to index terabytes of documentary data and create case files matrices of keywords by custodians, with visualisations to surface relevant data. The application also supports flagging, flexible tagging, annotations on top of documentary artefacts, and browser based redaction service as part of a legal disclosure workflow. We also use dictionaries of stop words and taxonomy to allow more sophisticated selection of artefacts from the the document collections so that the most relevant information is quickly surfaced. This demonstrates our competence and comfort in delivering various filtering and matching considerations alongside specific business rules to selectively surface data whether from structured fields or unstructured text. In another example, NCTL has a very strictly defined process in place for requesting teacher training places, where the type of place itself is important (if school direct then the place is requested from 1 user type [the school], passed to a second user type [the provider] before being approved by the DfE; if the place is provider led then the request goes from the provider to the DfE. A similar, but distinct, process is followed for the funding allocations themselves, where changes need to be approved by the provider and/or lead school, along with the DfE. An example of the workflow followed would be: 1) School user fills out form with specified fields (as defined by the DfE). Most fields are mandatory, some are optional. Fields to be entered are from pre-defined list of entries. 2) Form is sent to the provider user, who is notified by email. If all details are correct, provider can accept; if not then they can reject which pushes the form back to the school user. 3) If the form was accepted by the provider user, the form is received by the DfE team responsible (again, notified by email). If all details are correct, user can accept; if not they can reject which pushes the form back to the school user. Finally the DfE GIAS application has an approvals process built into the system for changes made to records on the system. This allows for the system to automatically decide when a change is made as to whether it can be updated immediately, or whether it needs to be approved by a separate user. The workflow here is as follows: 1) User edits record and saves. 2) System checks field(s) being edited. If the user is a data owner for that field, the field is saved. 3) If the user is not a data owner, but is a trusted source for that field, the field is saved. 4) If the user is neither a data owner nor a trusted source for that field, the field's update becomes pending. The data owner of that field is notified by email and is prompted to accept or reject the change. The approving user is also prompted to approve/reject any outstanding changes on each subsequent login. For the Adoption Register, Texuna will collaborate wtih the DfE and do User Research to properly understand user needs and departmental restrictions and then design a suitable front end single page application to meet all needs. We will provide a workflow mangement that supports defined business processes that support the needs and obligations involved. Given that policy changes, we will provide flexibility to support any workflow changes including the route for approval (e.g. social worker allow for approval and move on to next step of process - or reject - or reroute and keep original user informed whether by mail - or secure web-message etc) of where in process their request is. We will provide flexibility in business rule definition and allow matching to be done on the application and/or through 3rd party matching services (e.g. via GDS DDaT services).	

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall ensure that their solution: *provides a secure web based messaging service that can facilitate the two way discussion between groups including (but not limited to): - Adopters; - Admin users within Local Authorities, Regional Adoption Agencies and Voluntary Adoption Agencies; and - Support staff. *provides a secure web based messaging service that can facilitate the secure sending of attachments associated with the message.	Texuna have much experience implementing secure messaging services - for example the Ofsted Fostering Data Collection system delivered in 2018 allows users to raise questions to Ofsted staff and engage in a two-way chat. The messaging system is secure - only the originator of the message and the respondant can see the dialogue and make a response. The respondant can be restricted to a group of users if the access control is configured to allow it. This would be the case if, for example, support staff were jointly responsible for responding to messages from adopters.

The messaging system is embedded within the application and so messages cannot be accessed unless the user is logged in to the Adoption Register Solution. This means that the security measures and controls described elsewhere in this proposal apply equally to the messaging system - as the chat is protected through the logged-in HTTPS browser session. The secure messaging is therefore also GDS compliant.

A similar mechanism can be implemented for the Department for the Adoption Register. The Ofsted capability is described below:

1) Users of the Fostering Data Collection portal have the ability, at any point whilst logged in, to raise an issue to Ofsted staff (though this could equally be an individual based on configuration rules setup.)
2) All queries raised by the system are available for Ofsted staff to review. They are also contacted, by email, to advise them that an issue has been raised. The details of this issue are not included in the email, users must access the portal to review. This is for security and data protection purposes so that the message is kept confidential.
3) Once the user has raised an issue it will appear in their inbox on the portal, they can review the status at any time.
4) All ofsted users will see all issues raised in their respective inboxes. They can filter on status, subject, date raised or fostering agency if needed.
5) Ofsted users can reply to issues with any information needed. They can, if required, send more than 1 update. All responses are held in a thread-like view.
6) The original user will receive an email whenever a message is sent. As per the email sent to Ofsted staff, it will simply tell them there is a message available, the content is only available on the portal.
7) At any point the user or the Ofsted staff can close an issue, indicating no further updates are expected on the topic.

The Ofsted implementation is for communications between a user and a group (i.e. the Ofsted staff). This could be very easily amended to allow for communications between all members of the user's group/agency, which would facilitate group-to-group communications. Permission structures can also be implemented that will ensure that only the relevant and allowable users can contact specific other users/groups/etc.

Although the Ofsted implementation does not currently enable attachments (this was deemed unnecessary for their needs - since the Ofsted application already supports the sending of attachments within the system) - attachements to secure messaging can be enabled for the Adoption Register Solution, and become fully indexed for text search if required. As per secure text communications, the users will only be notified that data has been received via email, they will need to authenticate to the portal to review the data sent.

Ofsted staff have access to statistics around the use of the messaging tool within a collection period. It allows them to easily review the number of issues raised in a specific collection with a status of New, Open or Closed. This allows them to track, over time, the frequency of messages being received and how many remain to be closed off.

Ofsted have reported that the use of this tool has greatly aided them in the management of their fostering data collection. Previously users would raise queries via emails, which could be shared between multiple staff members. It was not always clear who had replied to an issue, what issues remained outstanding and what sort of volumes of issues were received. The new tool allows them to manage all case correspondence very easily, and end-users are able to see all their historic communications and responses at all times within the portal, meaning they do not need to rely on their email client or a separate case management system. | |

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DfE		Adoption Register	Bidders shall ensure that their solution can facilitate the timely publication of Departmentally approved content to the solution's Knowledge-base (or other appropriate area).	Texuna have operated a number of DfE digital services (Performance Profiles, Secure Access etc) and understand the importance of quality content design. We propose full-text search across all content to deliver search in a chat style experience alongside traditional navigation. This unifies how Adopters can find the help they need whether searching content guidelines, database fields, or their personally uploaded files.

DfE approved content can be uploaded as files through the backoffice UI. Most common filetypes are supported, with index/search and online viewers available for PDF, MS Excel, MS Word, Image (png, jpeg etc.) AVI, and HTML files (these frequently used formats are not exhaustive). This automatically supports multilingual search and corresponding help documentation if available. Files can be version managed so that only the most recent version is available for self service help. Structured content can be uploaded as an Excel file and split into separate questions and answers by application as follows:
*FAQs;
*Links to advice and guidance available elsewhere e.g. GOV.UK;
*Knowledgebase articles and guides/tutorials
This approach allows small modifications can be done offline and uploaded when ready without downtime.

Texuna will complete User Research with the Department to ensure the right content is available including:
*'How-to' videos;
*Guidance for the system's available workflows;
*Guidance for entering data;
*Context sensitive guidance for eForm filling and validations;
*Guidance for searching for information; and
*Guidance for creating bespoke reports.

Upon upload, the indexing pre-process updates the full-text index to make new content searchable. There are no restrictions on number of files, their types or file size. Cloud storage allows makes video guidance and tutorials of different formats and sizes feasible, with transcription available for accessibility purposes. The Azure Content Delivery Network helps to deliver heavy weight files to end users with high speed connections which is benefical for video tutorials. | |
| DfE | | Adoption Register | Bidders shall ensure that their solution can facilitate the provision of user self-service functionality, including (but not limited to):
*Provision of links to third party services that provide, for example, surveys;
*Knowledgebase articles and 'How-to' videos;
*FAQs;
*Password reset requests;
*Links to the appropriate advice and guidance that resides on the .gov.uk website;
*Guidance for the system's available workflows;
*Guidance for entering data;
*Guidance for searching for information; and
*Guidance for creating bespoke reports. | https://docs.google.com/document/d/13pUBuy4z17L5-NP8iJ8oKNf7OTTXV57yAdzXUdTaSbA/edit

964 words plus screenshots. | |

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall ensure that their solution can facilitate the provision of management information service functionality, such as (but not limited to): *Dashboards; *Ad hoc reports; *Information related to the number of searches undertaken (e.g. number of searches completed, average/peak results returned per search etc.) Bidders shall provide the DFE with monthly and annual reporting on AR performance. Such data will include (but not be limited to): numbers of matches made, adopters added, children added, searches undertaken, links initiated, matches made, system usage, characteristics of children and adopters live on the system.	Texuna have worked with DfE bodies for +15 years to deliver data and reporting solutions to HE Sector, serving central government, HE/FE/Alternate providers and Schools. Each of our projects have stringent report requirements which have been met through predefined reports and flexible report generation to enable ad hoc reports to be created. Texuna will deliver comprehensive reporting on usage behaviour of the Adoption Register. This includes standard dashboard reporting and flexible report generation capability so that all the management information requirements can be met. Our open standards and open policy also means that we will permit read-only access to a schema-friendly database view so that authorised users can use traditional tools, or generate an API interface for computer to computer delivery of relevant management information.

Some examples of what we have done for previous clients are presented below:

Texuna delivered Jisc's Reporting Frameworks project which utilised data from Jisc, HE/FE Providers and other relevant external sources (e.g. HESA). As an open solutions provider we integrated industry standard reporting tools, and particularly tools already familiar to Jisc staff so that they could generate their own custom and ad hoc reports on demand in addition to the dashboards and standard reports delivered in the project. Jisc use a reporting tool, Tableau, to generate management information. A sample graph showing usage monitoring is shown below. \<insert Jisc picture>

For the Secure Access project, data is structured in a manner that allows it to be easily reported and exported. Reporting data includes information such as: * breakdown of issues/risks/actions/incidents * breakdown of service issues (numbers raised, categories, priority of issues) * overview of accounts on system (by account type) \<insert visual number 1> * overview of usage of system (broken down to weekly numbers, by type) \<insert visual number 3>

For the National Student Student Survey by the Office for Students, a web-based analytics portal is provided by Texuna to allow university staff users to download and access their NSS results through a variety of means. This is done through Dashboards providing high-level visualisations of key metrics, static reports providing in-depth results of the Institutions and Sectors data through a variety of excel-based reports, along with a Custom Reporting tool which allow users to build ad-hoc reports based on key metrics and KPI's they need.

Texuna's experience in data modelling and report creation will ensure that the information for searches, matches, adopters, children and system usage and other key metrics required will all be structured to allow for easy reporting and, for frequently needed metrics, dashboard presentation. The counting of the information can, in turn, be split by various categories as deemed necessary (e.g. by date/time period, by user type, etc). Should additional reporting be required going forward, data can be utilised through raw exports, visualisation within the portal, use of simple tools such as excel or integration with a standard reporting package. Advanced search and filtering features with export functionality will allow data to be taken offline for analysis on any tool including Excel if required. | |
| DfE | | Adoption Register | Bidders shall ensure that their solution can facilitate the secure export of data in a variety of formats such as (but not limited to): SQL, .csv etc. | Texuna's work with the UK government as a data processor handling sensitive personal information (student data and electronic patient records) means that we are at the forefront of understanding the implications of GDPR on governance, IT and security. However our duty of due care doesn't stop us for meeting the needs to make data accessible in appropriate ways.

Texuna's solution incorporates multi-layered search for adopters data and filtering options allowing for 'deep-dive', specific results to be generated. These include, but are not limited to, date ranges, adopters characteristics, keywords inside media files uploaded by adopters. Search results can be saved for future re-use.

Any search resultset can be exported through HTTPS in formats such as csv, Excel, JSON or XML. Power users could also have the option to run SQL through a backoffice panel and view the resultset online. Such resultsets can also be exported in the same way via HTTPS to the local machine.

Saved search and SQL query results may be scheduled for regular generation of export files e.g. nightly. Furthermore a REST API is provided to download exports automatically via secure channels subject to authentication. A full audit log of searches and exports including interactions made via REST API is automatically maintained to faciliate data usage analytics.

The Adoption Registry will use relational data storage with fully SQL-compliant query support, strict schema, strong consistency and automated encryption. SQL-compliant data storage will be BI tool-friendly, which guarantees that advanced DfE users will be easily able to interrogate the databse if deemed necessary via existing BI tools such as PowerBI, Tableau, Qlik, in addition to standard reporting delivered as part of the solution.

Texuna have also designed an information classification and obfuscation workflow with audit trail to help data owners and data protection officers implement governance best practices and ensure the right strategies are applied to the data before it leaves source. This can be used to move data between production and UAT environments for example, but also to ensure Personally Identifiable Information can be hashed or encrypted depending on which user group is accessing and/or exporting data. | |

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall ensure that their solution: *Has sufficient capacity to store information and data that has been submitted, as well as that data which has been migrated; *Can support at least 4000 users on the system; *Has sufficient capacity to support at least 75% concurrent users; *Has sufficient capacity to support at least 75% concurrent login attempts; *Is responsive (i.e. that it responds in a reasonable time) to user requests; *Has sufficient capacity to facilitate at least 150 searches per day without impact or downtime to other areas of the system during standard working hours; *Has sufficient capacity to be able to maintain data relating to at least 220 establishments; *Has sufficient capacity to support at least 4000 user accounts; *Has sufficient capacity to support at least 7000 logins per month; *Include at least 5000 profiles per year (of adopters and children); *Can facilitate at least 3000 links a month; *Monitor system usage at user level; *Meet Departmental and statutory requirements around system access & no onward sharing of information held in the Register; *Supports matching between children and adopters including secure communications & multiple links simultaneously; and *Provide detailed management information to the Department on a monthly, annual and ad-hoc basis.	Texuna's fully scalable architecture is described in our system design response in question 2.1. Should demand for the service increase by an order of magnitude then additional system resources can easily be configured to meet the increased service demands, even if only during short term temporary period of high activity (e.g. Performance Profiles Publication or National Student Survey publication each year are specifically optimised for short periods each year for expected surges in use). Texuna has a strong track record of developing scalable high availabilty solutions. As our solutions grow and as demand increases, system resources may be incrementally added to maintain good response times. For example, our Identity Access Management platform has been configured and deployed as DfE Secure Access and integrated with eleven legacy DfE systems. At go live, three services were integrated; the number of distinct services has now more than doubled with no adverse impact. The high availability configuration also allows the service to be tolerant of any failure in front end or back end services. When Texuna deploy solutions we do not limit the amount of users, profiles, groups, usage or data that can be setup and handled. The cloud based reference infrastructure can scale upwards easily and can be configured to be automated in an elastic way if desired. However efficient engineering permits huge proportions of concurrent users to be supported. For example the DfE SA IAM is now witnessing over 300,000 successful logins a month and has potential support for over a million users and a comfortable throughput of almost 100,000 logins per hour. The Adoption Register response times can be monitored and measured using system tools to ensure that users are given good response times, even to complex searches over the whole user-base. The use of a cache eliminates any databse bottlenecks and keeps the database relatively free for write transactions. Data storage requirements have also been provided for and we have proposed an Enterprise level database architecture that is capable of supporting increased growth over time. Our largest solution is the Initial Teacher Training Data Management System at the DfE - it is an example of a robust enterprise level database management solution that has grown, expanded and changed over more than 15 years without the need to rearchitect. Originally a single annual data collection for teacher training with associated reporting, ITTDMS has grown into the equivalent of an enterprise data warehouse platform that manages more than 20 disparate datasets across more than 10 annual data collections, supporting 14 different user access portals. This solution holds over 60 Million records where each record is complex and comprises over 250 datafields. Texuna confirm that we do not throttle our solutions in any way or by any criteria. So there are no limits to the number of users, links, connections or database size - and it is relatively inexpensive to size the infrastructure to meet the necessary scale. The capacities and volumes specified for the Adoption Register are easy to achieve in a high performance high availability infrastructure. The solution proposed is a fully audited system so that all system activity is recorded and may be traced and analysed by authorised users. It is possible to see how many users are currently logged in and, if necessary, who they are. These inbuilt system capabilities provide the Department with monitoring at user level and the ability to interrogate historic records of access in case of need. The Solution proposed is compliant with the Regulatory and Statutory requirements for the Adoption Register. Data security and GDPR are addressed in the solution design which provides access only to those with 'a need to know' and information security protection for sensitive data. The inbuilt access control mechanisms to field level will provide the level of control required to fulfill the Departments remit of guarding sensitive data about vulnerable children. Matching between children and potential adoptive parents is one main purpose of the register and is fully supported. The search capabilities will be the foundation stone for making matches. As an option Texuna would be able to provide assisted searching using, for example, fuzzy matching logic or weighted searches to ensure that the likelihood of matching is increased. These sophisticated search algorithms can be used to rank results and provide a resultset that will contain more relevant matches than would be the case if filters are used alone. The Solution proposed will provide the Department with regular, periodic management information about the use and success rate of the Register. All the data held in the database is available for management information provision and standard report tools may be used to summarise and provide, e.g. dashboard reports on performance indicators. Texuna will work with the Department to ensure that the reports configured fully meet the Departments needs.	

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall ensure that their solution can be scaled according to increases in data volumes and user numbers.	Texuna's fully scalable architecture is described in our system design response in question 2.1. Should demand for the service increase by an order of magnitude then additional system resources can easily be configured to meet the increased service demands, even if only during short term temporary period of high activity (e.g. Performance Profiles Publication or National Student Survey publication each year are specifically optimised for short periods each year for expected surges in use).	
				Texuna has a strong track record of developing scalable high availabilty solutions. As our solutions grow and as demand increases, system resources may be incrementally added to maintain good response times. For example, our Identity Access Management platform has been configured and deployed as DfE Secure Access and integrated with eleven legacy DfE systems. At Go-Live, three services were integrated; today the number of distinct services has more than doubled with no adverse impact. The high availability configuration also allows the service to be tolerant of any failure in frontend or backend services.	
				As per 2.1 Texuna use Docker containers to encapsulate Services, allowing us to deliver cloud-agnostic, portable services.	
				<<Insert low level architecture diagram >>	
				Texuna will deliver any heavy loaded backend services (e.g. full-text indexing) as separate containers that implement REST API endpoints and scale independently to guarantee quality of service. Containerisation will simplify support and maintenance, making otherwise difficult tasks easy (e.g. recovery, deployment options and repeatable infrastructure in minutes).	
				Azure SQL Database helps to change performance characteristics of Adoption registry database on the fly and assign more resources when needed. Vertical and horizontal scaling options are provided. Azure automates these tasks reducing support and maintenence complexity. System administrator should set new data size required for solution when data volumes grows and change is applied immediately without downtime. Solution will utilise cloud storage for files proving almost boundless possibilities hosting video and other document types help materials.	
				Texuna will deliver an Adoption register that uses a service bus as durable storage with a guaranteed message delivery component (Azure Service Bus). This helps to sustain peaks in requests and guarantees that all user requests are served without any being discarded in case of service disruption. It will also allow the adoption application to asynchronously submit tasks with an improved user experience as users continue to browse the application and proceed with other activities. The Service Bus may bridge to any existing or future DfE Enterprise service bus and other department applications and services. Service Bus message queues can integrate applications or components that span multiple communication protocols, data contracts, trust domains, and/or network environments and eliminates synchronous bottlenecks.	
				In-memory cache (Azure Redis) for "hot" data provides the best possible user experience for adopters - even in case of any backend disruption in service. Cache operations consistently serve read and write requests within single-digit milliseconds to scale data tiers as and when application loads may increase. Adopters will enjoy blazingly fast responses to their browser clicks.	
				Azure Search provides search functionality with search suggestions, fuzzy search, and language-specific search options. It removes the necessity for complex and heavy requests to database reducing the burden put by increase of user numbers. Azure Search easily scales in Azure cloud via user interface.	
				The use of Azure Content Delivery Network (CDN) to cache publicly available content (guidelines, tutorials and documentation) for lower latency and faster delivery guarantees that increases in users or downloads doesn't impact application performance because the load is shifted to independent Azure Cloud infrastructure while the application asynchronous APIs free the user to continue with other UI activities.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
DfE		Adoption Register	Bidders shall ensure that *Their solution includes a resilient disaster recovery (DR) facility that can provide the required level of availability as specified in the ITT; *The system's DR facility ensures the solution will be fully live again within 48 hours following a disaster; *Their solution has a core service availability as follows, except in agreed service outage periods: - 9am – 5pm Monday to Friday with support (except Bank Holidays) - Outside the above stated hours without support *Their solution provides daily backups of the data; and *Backups are incremental and data is recoverable from any period of outage. Note: The overall service availability will need documenting in the evidence box below.	Texuna will provision Azure for 24/7/365 access with 99.5% availability to meet DfE requirements for the Adoption Register. Texuna's default SLA for a priority one (downtime) issue is 4 hours. In reality experience with AWS shows that unexpected downtime is typically recovered within minutes assuming Texuna DevOps have administrator access to the hosting environment. Similar performance has been achieved by Texuna on Azure more recently. No additional charges are anticipated to achieve availability ranges from 95% to 99.7%. Robust maintenance and business continuity management is included in Texuna's risk management and quality assurance planning. General measures include: *The architecture supports business continuity so that at least two identical server environments are available at all times (i.e. Production, and user testing) - these can be quickly swapped in the case of a major system failure (e.g. hardware issue); *Servers are protected using anti-malware protection and regular patching against security vulnerabilities; *Policy dictates incremental daily backups are taken and kept for an agreed period off-site with the latest backup overwriting the oldest held. Monthly, quarterly and annual full backups are also taken and retained off-site for an agreed period to support ad hoc longitudinal investigations; *System management and maintenance processes are all fully documented which facilitates staff training and handover; *Documentation includes at a minimum: o Environment and server/services configuration, o Maintenance and monitoring procedures, o Backup and Disaster Recovery, and o Encryption and certificate requirements. Additional measures include: *Training involves staff rotation to improve knowledge transfer across projects and resources. *Texuna's internal knowledgebase and operational systems are cloud hosted with BCDR plans so work can continue from any remote location during any unexpected event. *Texuna staff perform multipe roles across multiple offices which extends our recovery capability in extreme events to continue service from alternative locations. *Sensitive data is kept encrypted in the database and in the backups (which are also encrypted). Azure Blue Green release management will be used for frontend and backend updated to achieve zero downtime deployments. Availability calculations customarily exclude scheduled and approved downtime which may be required for some releases (e.g. database updates). Any approved downtime will occur outside of the usual working hours to minimise impact of scheduled "out-of-hours" releases. The Service Desk for each project is typically staffed between the hours of 9:00 and 17:00 every weekday and custom arrangements can be made for out-of-hours service as part of any commercial negotiation with the Department.	

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DfE		Adoption Register	Bidders shall ensure that their solution components are interoperable with each other and third-party applications and services such as (but not limited to): *Postcode validation services; *Authentication services; and *Data Matching services.	Texuna is an open solutions provider and open source integrator. We use state of the art technology to provide robust, highly functional and performant solutions to meet demanding business needs. Our approach is to adopt standard components and libraries to enable us to delivery high quality, flexible and user-friendly enterprise level solutions for our clients in aggressive timelines. We follow GDS principles and use a number of Agile methods such as Scrum, Lean and Kanban techniques to provide fit-for-purpose iterations with continual testing with real users. Where third party sources enhance or support the data processes being delivered they will be integrated seamlessly to enhance the user experience. Texuna have proposed the Pentaho Data Integration (PDI) platform as the best ETL tool to meet the Departments needs. PDI is an innovative software platform, providing connectors to many source systems and database structures. It literally has hundreds of built-in components for connections, transformations and controls and is widely used by developers in the open source community. PDI offers broad connectivity to a diverse range of popular data platforms including: *Structured databases, *Unstructured file systems and *Semi-structured data sources. PDI is already in extensive use in the HMRC to match data across multiple data warehouses. To increase the performance of data extraction, loading and delivery processes, Pentaho offers the following data delivery capabilities: Native connectivity and bulk-loading to most common data sources Multi-dimensional format for analytics Real-time data services for operational 3rd party applications PDI provides excellent support for integration via Web Services, covering both REST/JSON and SOAP/XML to consume 3rd party APIs. This is a technology agnostic approach which will allow the Department to easily include integration services which support any technology stack. Postcode validation Integration with postcode validation services is an effective way of ensuring quality of address data collected. Previously we integrated with AddressBase for postcode matching when users change school addresses in GIAS. For UK addresses only the match is created on the specific postcode entered and the result may be one or many addresses. Where there are multiple matches the user must select the nearest match to choose the address to be used. If the chosen address is saved, the Unique Property Reference Number (UPRN) is also saved to the establishment record in GIAS so that the database is enhanced. Authentication Texuna will integrate with user authentication services as required by the Department. We are the current supplier of SA, the IAM solution currently in use for eleven of the Departments legacy services. To deliver the Secure Access solution we have developed support for a wide range of commonly used authentication methods including: * LDAP * Microsoft Active Directory * A local authentication method * Role based controls. In addition we support the following authentication protocols and standards * Single Sign-On (SAML2.0) * Shibboleth identity provider * OpenID Connect (OIDC) / OAuth2.0 * Fido UAF U2F CTAP / W3C WebAuthn The development for SA and the required flexibility that the onboarding and off-boarding processes for SA require place Texuna in an ideal position to provide integration with any authentication service that the Department may require for the initial implementation and to migrate to an alternative provider during the lifetime of the Adoption Register solution should this be required. We have addressed authentication and integration services more completely in question 2.1.2 above. Data Matching services. The availability and suitability of formal 3rd party service such as a GDS data matching service (derived from the Electoral Commission investigation of DWP-CIS matching of identities against local authority electoral registers as part of the transition to Individual Electoral Registration) or GOV.UK/Verify will need to be evaluated against DfE Adoption Register needs. Texuna are able to support data matching through the use of an open source ETL tool (e.g. Pentaho PDI) to transform and load any incoming data from matching sources. Basic data matching will be implemented using this service. Specialist data matching may be needed to verify and cleanse certain data that the Department wishes to maintain and these will be integrated as required. Texuna has already worked with the GDS tools and libraries and has provided data integration services for many of our customers. Should a GDS matching service become available that will be used. Data matching requirements will be driven by the need to reduce risk to the Department and the data held. Some of the products in use as part of the National Fraud Initiative, such as, AppCheck may have some utility to assess self-referrals from individuals and ensure that they are bona fide applicants and do not have a history of fraud or are known to be fraudulent.	https://docs. google. com/docum ent/d/1P3bc fx6WKZagNlc exRLQtTaRh ZhTNvwWjN 0Trtmobl8/e dit Approx 750 words plus screenshots included

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall ensure that: *Their proposed IT solution is fully maintainable and can be customised and configured to meet the needs of the users; and *The data and information associated with their proposed IT solution can be exported for use within another IT solution using a portable standard, such as (but not limited to) SQL, MySQL etc.	Texuna propose a service-oriented architecture with an independent frontend Single Page Application that connects via API to a backend application based on open source and open standards as per GDS best practices. The API is accessible to browser clients through AJAX, native client applications, or by server-side applications allowing develop new frontends and extend existing. The application source code can be open sourced if so desired and will be shared with the DfE in any case for future maintenance independently. Texuna will share coding standards and ensure they follow lastest GDS guidelines like camelCase. All automated unit test scripts will also be shared through the common code repository, and the IPR shared with the DfE through common open source licence. To avoid proprietary lock-in to public cloud infrastructure we use Ansible and Terraform for provisioning and management. This gives cloud portability to make it easy to migrate from cloud to cloud to in-house in a predictable quality assured way. We containerise the application so that the proposed Azure API app services connects to a split backend made up of several web API containers. The Adoption Registry will use relational data storage for persistence with fully SQL-compliant query support, strict schema, strong consistency and automated encryption. No stored procs or business logic will be buried in the database and the schema will be BI tool-friendly so advanced DfE users can interrogate the data directly in addition to standard reporting delivered as part of the solution. Standard database backups or service images can be used to migrate the data to other databases.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
DfE		Adoption Register	Bidders shall ensure that their solution is: *Capable of being fully hosted (i.e. Web Application and Data) within the EEA; *Capable of being hosted within the DfE's Microsoft Azure platform. *Cloud-based and platform agnostic; *Accessible to DfE users; *Accessible to defined external parties (i.e. LAs/RAAs);	Texuna will ensure the solution is physically hosted exclusively within the UK and that data is never transmitted or transferred outside the EEA. Texuna deliver cloud agnostic and platform agnostic solutions to give total portability beween inhouse and public cloud. Texuna already host solutions on the Departments Azure cloud environment (GIAS backend) as well as on AWS cloud (e.g. Secure Access) which historically has provided better availability and value for money. Texuna's Adoption Registry proposal assumes Azure hosting to conform with GDS expectations - which may or may not be on the Departments Azure account.

Texuna will use the Azure UK cloud center which is physically isolated from other Azure centres other than by independent internet connections. Data will never transfer between regional centers in different legal jurisdictions around the world. From a legal perspective the cloud hosting is isolated. Hosting is comprehensive and configuraiton will be dedicated to the Adoption Registry with no multi-tenant or shared access to infrastructure. All data and applications are isolated within the same hosting infrastructure and network configuration.

Texuna is both a qualified AWS Consulting Partner and an experienced Azure practitioner (working with DfE). Given our client focus, vendor neutrality, and open source expertise we work within client guidelines when designing and architecting solutions. We use vendor-neutral open source tools like Terraform, giving cross-cloud portability. Texuna automated deployment scripts ensure reliable, highly available and robust solutions by automating the replication of data and platform components across multiple locations (zones) over multiple dedicated fiber network connections. This foundation layer provides an extremely high level of availability and low time to recover machine instances. It also means that all backup and disaster recovery options can comfortably live within the UK or, if desired for higher assurance, within the EU jurisdiction.

Texuna leverage cloud provider native toolsets to set-up/operate/scale database services, thereby eliminating installation, upgrades, storage management, replication and backup snapshots. It also automates monitoring/metric management, Isolation & Security (data encrypted at rest).

Texuna's approach mirrors the public cloud philosophy of disposable services. Infrastructure and services are "throw-away" and easy to reprovision and restart. This minimises any operational impact. Texuna's multi-cloud expertise allows us to deliver quasi-automated solution recovery to any other cloud. Our solution is comprehensive:
* Terraform scripts describe infrastructure as software, enabling quick and seamless recovery and re-deployment.
* Database cluster can replicate all data across multiple nodes, continuously backing up data snapshots to Blob/object storage. Any existing snapshot can automatically restore the database.
* Application virtual machines when required use Disk/Block Storage volumes for data with backup to Blob/Object storage. Ansible configuration ensures all server and application services work as expected.
* Database requirements are platform agnostic, and can use a multi-zone highly available configuration in Production for valuable data if deemed necessary. Development and UAT environments use snapshots and daily historical backups. Daily logical backups (SQL dumps) are saved using temporary isolated and encrypted virtual machine instances, running through Azure Functions.
Historical backups are transitioned to secure and robust Azure Backup after 30 days to give low cost multi-year cover.

We commit to maintaining a minimum level of staff certifications as qualified business experts, solution architects, developers and DevOps administrators. A wide range of our staff hold and enhance their qualifications so that we can provide outstanding service and support to our clients.

We provide 3 separate, distinct yet standardised environments for our solutions:
* Development - in flux, test data only.
* UAT- to facilitate client testing and training. UAT may have Production data or obfuscated and anonymised Production data.
* Production - live data and services.

In addition:
*Back-ups are scheduled on a daily regular schedule and backup copies are kept according to agreed backup retention policy.
*Disaster recovery tests are regularly scheduled to verify the backup and restore processes.

Access to each of these environments is strictly controlled and open to only authorised users. The Solution will be accessible to DfE users and to defined external parties who have a need to have access. Once authenticated, access permissions are controlled by type of user (Access Group). | |

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall: *Ensure that their solution meets or exceeds the DfE's security standards and requirements; *Submit their solution for scrutiny via the DfE's security processes, including (but not limited to): producing RMADS documentation and undergoing penetration testing; and *Provide evidence of their ISO 27001:2013 certification. [3]	Beyond our legal and moral obligations to protect data and manage information securely, Texuna have put policies, processes and procedures in place to institutionalise our commitment and create a culture of security by default. At the core of our information security is full conformance to ISO 27001, along with ISO 9001 and ISO 20000-1. Each of these information security, quality and service management systems is externally audited and certified by BSI, with no scope restrictions. We have embedded a robust security culture, vetted by government clients and via RMADS for our existing Department projects. Our architecture exceeds that of the UK-OFFICIAL classification guidelines produced independently by: * National Cyber Security Centre (NCSC) Cloud Security Principles. * Center for Internet Security (CIS) Critical Security Controls. Texuna deployments include: * Standard, external-facing Virtual Private Cloud (VPC) Multi-Availability Zone architecture in London Region. * Separate Azure Virtual Network subnets for public application tiers (bastion/management host). * Separate Azure Virtual Network subnet for private (back-end) tiers for Operational databases. * Standard VPC security groups for virtual machine instances. * A management VPC hosting a secured bastion login host to: ** facilitate SSH command line access for troubleshooting and systems administration. ** centralise governance and security tools (monitoring/credentials/vulnerability/configuration management etc.). * Logging, monitoring, and alerts using configuration rules. To eliminate human error, the entire network infrastructure is defined in software providing: * SSL/TLS support when servers are setup. * Transport layer protocols support configured through server installation script. * SSL and other protocol support is specifically and separately enabled for each application. * Full Transport Layer Security v1 and above (TLS) incorporating increased key strength. As a supplier to the DfE, Texuna will commit to complying with the DfE Security Policies and the Departmental Security Assurance Model process. We will work closely with the DfE Security Officers to provide any necessary evidence of our compliance. Texuna have previously completing the DfE audits for RMADS assessments and have always demonstrated that our internal systems are sufficiently robust to satisfy DfE security requirements. We welcome any scrutiny required by the Department and to provide RMADS documentation. We routinely perform penetration testing on our solutions: * A suite of penetration testing tools are used to ensure any code and functionality is robust and withstand attacks. Namely: ** OWASP Application Security Verification Standard ** NMap ** Nikto2 ** Observatory by Mozilla ** OWASP Dependency Check ** FindSecBugs plugin for FindBugs ** OWASP WAP-Web Application Protection ** OWASP sed Attack Proxy ** OWASP Xenotix XSS Exploit Framework ** Wfuzz - The Web Bruteforcer ** Fuzzdb - Extended dictionary of attack patterns and primitives for black-box application fault injection and resource discovery. ** Retire.js Texuna have also previously been independently penetration tested by BSI on multiple occasions, and are committed to supporting further external penetration testing services. Texuna also holds: ISO 27001:2015 Security Management Standard Cyber Essentials and compliance with the IASME Governance Standard ISO 9001:2015 - Quality Management Standard. ISO 20001 - Service Management Standard. ISO 14000 - Environment Management Standard. Our ISO 27001:2013 certificate and our Cyber Essentials certificates accompany this response. Please also note that both Azure and AWS cloud hosting are also ISO27001 certified and this will assure robust security architecture for the Department's solution.	
DfE		Adoption Register	Bidders shall engage with the Department to discuss current and future data standards that could be applied. [4]	Texuna commit to meeting the Information Standards Board standards required by the Department. Texuna have a strong track record in the provision of data management and data warehouse solutions in the public and education sectors. We understand the importance of master data management and good governance to both protect the integrity and quality of data and to provide conformance with the language of the business. We have implemented Master Data Management at our datawarehouse project for Jisc and have adopted the HESA Data Futures vocabularies for our HE projects. We are strong advocates of maturity of data as an asset.	

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	Sector	Solution	Question	Template Response	Picture number
DfE		Adoption Register	Bidders shall ensure that, where possible, their proposed IT solution is aligned with the Cabinet Office guidelines on open standards. [5]	Texuna adhere to the Digital-by-Default standard for build and implementation, having used GDS patterns and libraries across projects front-end Single Page Applications. We consistently apply open standards e.g. Secure Access IAM SAML via Shibboleth. Being vendor and cloud agnostic we select the most appropriate tools for the task and ensure portability to avoid lock-in. We are adept with OSS equivalents of proprietary platforms. We have already worked with GDS to implement GOV.UK services (DfE GIAS and Ofsted Fostering Data Collection). We reuse open source - including GDS patterns - to deliver solutions e.g. for Department of Finance in Ireland.	
DfE		Adoption Register	*The Bidder's approach to Incident and Problem Management must align with ITIL v3. *The Bidder's approach to Availability Management must align with ITIL v3; *The Bidder must agree and implement a maintenance schedule in collaboration with the Department's key stakeholders. *The Bidder's approach to Capacity Management must align with ITIL v3. *The Bidder's approach to Service Reporting must align with ITIL v3. *The Bidder's solution must be capable of supporting service reports as follows: *Ad-hoc; and *Monthly; *The Bidder's Support Desk Provision must align with ITIL v3; *Bidders must offer telephone and e-support (at a minimum) for the duration of the contract; and *The Support Desk must be available during the following hours 09:00 to 17:00, Monday to Friday (excluding Bank Holidays). *Bidder's Change and Release Management processes must align with ITIL v3; and *All changes to the proposed IT solution must be undertaken in agreement with the DfE. The proposed IT solution must contain an automatic back-up (a.k.a. 'archive') facility, or Bidders must ensure that back-ups are regularly scheduled (in line with ITIL v3 best practice). *Bidders must ensure that the integrity of the back-ups are checked on a periodic basis (the frequency and nature of the back-ups shall be agreed with the DfE); [6]	Texuna has 14+ years of experience running helpdesk services in the educational sector according to ITIL v3 best practises. Our helpdesk is certified to the ISO 2000-1 standard (Service Management). Formalised processes ensure that all recorded incidents are assessed to determine root cause and that we address the root cause so that we prevent the recurrence of issues wherever possible. Root cause remedies are addressed as corrective actions are implemented to rectify. The same process is used to record preventive actions identified during investigation. Such "problem management" goes beyond immediate resolution to ensure a repeatable process to prevent recurrence of similar incidents. We use these processes to increase security awareness and strengthen security integrity. Raised incidents can only be closed after senior and authorised members of staff have reviewed the issue, any possible impact and corrective/preventive actions associated have been identified and addressed satisfactorily. Texuna has nominated Standards Officers in each office whose role is to ensure that our standards processes are operating effectively. They are also responsible for management reporting to our CEO who strongly advocates our standards processes. Tickets are escalated to the oficers, tracked using an identifying number so that bi-directional communication is maintained and streamlined. All service queries for each project are responded in accordance within each projects own agreed SLA's. The service desk can provide a number of metrics in the form of monthly reports. We have a track record of five years of support services for the SA project in addition to support for other DfE and NCTL projects. Historically DfE reports have been defined to include: *Management summary (including planned work that may impact DfE) *Requests and incidents counts and statuses (current and historic) *Incident by priority and category *First Response *Times Issue *Resolution Times *Monthly availability Performance to KPI/SLAs Delivered System Exceptions Any new or additional content to benefit the project can be discussed and agreed. Reports can be made available in different formats as required. Important or sensitive issues are flagged immediately to the client, not necessarily waiting until the monthly report. Texuna monitor and manage our staff and their workloads through our regular weekly operations meeting where managers are able to report and identify and resource needs. Resource conflicts and priorities are typically resolved through these regular discussions. In addition, our technical resources are allocated to tasks through a rolling two month plan so that our product schedule and releases across all projects are clear and so that the deliveries can be managed according to our Agile methodology. Capacity requirements are planned and managed through these regular processes. In the event of expected increase in demand or any identified conflicts, any requests for more resources are escalated to our CEO for consideration. Texuna ensure that staff are cross trained where possible so that knowledge is shared among project staff. This provides us with capacity among our employees to maintain our levels of service in unforeseen events such as staff absence. The Service Desk is ususally staffed between the hours of 9:00 and 17:00 every weekday and arrangements can be made for out-of-hours service. A route for queries from the Call originator will be established directly with the DfE, along with The response times (SLA's) required. Texuna GCloud documentation itemises different possible service packages for Enterprise, Premium and Basic level services.	

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DfE		Adoption Register	The bidder must provide call-off support for the life-time of the solution.	Texuna can provide the desired technical call-off support for the duration of the service. Texuna GCloud10 defines "off-the-shelf" post implementation service packages as Basic, Premium and Enterprise support. However we can design bespoke support terms on a call-off basis for the Department at a blended day rate of £600 which represents a significant discount to rack rates.

SLA's and service for our "off-the-shelf" service packages for email and telephone support is capped:
** Basic – 1 hour per month with SLA of 5 days (free of charge)
** Premium – 10 hours/month with SLA of 2 days (low cost)
** Enterprise – 30 hours/month with SLA of 4 hours (medium cost, limited service levels)

Texuna support contact hours are between 9 a.m. and 5 p.m. Monday to Friday (excluding UK bank holidays).
Basic and Premium packages are entry level and not appropriate for GDS public services - therefore an Enterprise package is required. Complex solutions with multiple server components clusterd may require multiple enterprise support packages.
For enterprise and bespoke support packages, priority 1 severity (defined as service downtime) SLA response is within 1 hour.

Bespoke packages may be customised to provide extended support hours or improved SLA's either for short periods or on a permanent basis. Additional changes apply for extended support hours, weekends or holiday periods. If required the support package and pricing will be tailored to the Departments requirement.

Texuna have estimated reasonable helpdesk and devops support requirements for this project, detailed in the attached cost model. | | |
| DfE | | Adoption Register | *Bidders must ensure that they provide the appropriate training to all user groups. These shall include, but are not limited to:
 - Users within Local Authorities, Regional Adoption Agencies and Voluntary Adoption Agencies;
 - Adopters
 - Support (admin) staff; and
 - DfE policy staff;
*Bidders must ensure that they provide the appropriate training nationally, regionally and locally to users (including but not limited to):
 - Training on the end to end processes (including linking, messaging, searching, and registration processes) from the front end and on reporting for local authority, regional adoption agency, and voluntary adoption agency users; and
 - Training for Department users on extracting data from the back end and manipulating data for reporting purposes. | Texuna will provide training both to the Department support (administration) staff and and help-desk users as required. This can include 'train-the-trainer' sessions for advanced end-users (superusers) as we did with the STA ItemBank solution in Q2 2017 which was very well received by attendees.

Texuna is able to offer training in any of the following formats:
*Manuals and user guides - there is comprehensive documentation available to users of the Solution.
*Videos for uses who are new to the Solution or who want a refresher for infrequent tasks.
*Webinar - Texuna can offer remote webinars as a training option which is useful particularly if attendees are geographically spread. These can also be recorded for future reference and playback.
*Face-to-face training for larger user groups in geographically strategic locations to maximise participation.

Texuna is able to provide comprehensive training sessions supported by full documentation and test case scenarios. The number of sessions necessary can be finalised in discussions with the Department and based on user feedback, but the expected number of each training sessions is outlined here.

Training for Support staff and DfE policy staff will be carried out on-site. Two sessions are planned before going live, and will be treated as Train-the-trainer style sessions. End-to-end processes training including linking, messaging, searching, and registration processes from the frontend and on reporting for local authority, regional adoption agency, and voluntary adoption agency users. We have the necessary skills and experience to ensure that a complete knowledge transfer is accomplished to equip DfE staff with the knowledge they need to operate the solution.

Data extraction and manipulation - training will cover data extraction and connection to Azure SQL databse. SQL-compliant data storage is BI-friendly, which guarantees that advanced DfE users will be easily able to configurable reports through their existing BI tools such as PowerBI, Tableau, Qlik, in addition to standard reporting delivered as part of the solution.

Manuals and user guides, videos, webinars are the main training delivery routes nationally and regionally to users. Texuna will deliver 5 webinars during handover and aftercare period. These webinars will be recorded and published as additional training materials. Furthermore Texuna will deliver 3 regional traning event days, each of which might be expected to take 3 to 5 hours each to deliver. More training events can be delivered if required but will be subject to additional costs.

Texuna is also able to help establish a set of standard procedures for responding to standard user requests as part of the end-user training if required. | | |

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DfE		Adoption Register	Bidders shall ensure that their solution will capture audit information for all changes and amendments to data captured including (but not limited to): *a record of those records that have been accessed; *a record of those records that have been updated; *a record of those fields that have been updated; *a record of who made the change(s); and *a record of when any and all changes were made. Bidders shall ensure their solution will capture audit information for all versions of reports generated.	Texuna implement a multilevel audit trail by default across all systems. The audit trail is configurable to be as light touch or as extensive as required. Audit and permissions generally follow these principles: * User access control - so that permissions are granted to individual users so that the audit record shows the individual. * Accountability for all record updates and changes including additions and deletions, with online viewable/searchable audit history logs. * All data operations can be independently audited * Audit logs are themselves subject to access control management * Logs from all systems streamed to independently secured, tamper resistant storage for monitoring and investigations. The above ensure that Texuna solutions automatically provide a complete audit traill that records: * who accessed the data * when the data was accessed, * what data was accessed * what changes were made The audit trail tracks access to data and this includes report generation so that it is possible to identify and analyse the reports generated out of the system as well as screen views, i.e. there is a complete record of all user activity. Audit, history and versioning features will ensure all users actions are tracked so that there is a complete history of events and transactions undertaken with date and time stamps. The audit trail includes a highly granular level of detail so that views or changes at field level will be recorded. Audit records are searchable using filters and subsets can be exported as CSV / Excel file for further analysis and accountability tracking. The Audit trail also tracks automated processes, such as web service interactions and/or ETL data migration. Exact data sources and destinations can be traced to the date and time of the upload or download. Audit log data can be viewed online and/or through any BI tool so that authorised staff may have a monitoring dashboard that shows: * source system connections, * disconnection errors, along with * Statistics on data changes like number of records processed, number of matches issues etc.	
DfE		Adoption Register	Bidders must ensure that their solution is GDPR compliant and supports: *The migration of data from the existing application to the new solution maintaining data integrity and structure; *The migration of data from the solution to another solution when required; and *The retention of all property data and survey reports indefinitely.	Texuna aligns information security to our corporate strategy giving it a top priority. Texuna is registered with the Information Commissioner as a data controller and is certified under the ISO27001 standard by BSI across all office locations. BSI audits our controls including data security and system integrity. Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: * avoid highly bespoke permissions on low level granularity (simplicity facilitiates better management) * encrypt or hash sensitive data where privacy is required * separate the management of user mapping to groups from the management of access permissions with groups * integrate to existing enterprise IAM if available (e.g. Active Directory) * secure private data through restricted database views for Business Inteligence tools. Permissions are flexible and apply at multiple levels. For example, access to Court Report documents can be restricted to user groups with a 'need-to-know'. Restrictions can be applied to the potential adopters, their case workers, and the prospective child's case workers. We implement a similar approach on DfE GIAS workflow. The management and migration of historic data from the legacy system requires special attention. Texuna's data warehousing and ETL experience ensures the highest level of protections are used during initial classification and migration. Secure ETL scripts will create a customised set of processes to migrate and, if necessary, cleanse the data. Data upload to the cloud hosting environment will be configured so that it is secure and a potential way to accomplish this is to configure a direct connection ie a database access login to enable VPN connection between the current source and the Azure environment. Where data is migrated and data matching is required we match on true and unique matches according to agreed matching criteria. Where duplicates are found or where the match is less certain, matching reports are created so that authorised staff can confirm or reject a match though a management screen to maintain data integrity and relationships. If individual file batches need to be exchanged then Texuna will use the Departments preferred secure data exchange solution EGRESS switch to protect the data. Similarly at end of life Texuna can also support the data migration to an alternative service if required, or help the Department to retire the data properly. Texuna will work with the Department to design and implement a suitable data retention policy and implementation for all types of data held. Some data, such as property and survey reports will be retained indefinitely. Other data, particularly personal and sensitive data may be retained only for as long as it is needed according to GDPR and so suitable mechanisms will be created to remove i.e. archive or delete data according to automatically applied business rules. Anonymised or aggregated data may be retained indefinitely for reporting purposes and trend analysis if needed.	

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DfE		Adoption Register	Bidders shall ensure that: *Their solution meets the following industry standards for accessibility: - Compliance with WCAG V2 to 'AA' Standard http://www.w3.org/TR/WCAG20/ - Compliance with ISO 9241-171:2008 (Ergonomics of human-system Interface) *They provide details which demonstrate their ability to carry out evaluation to identify barriers to usability and reduced usability / functionality; *They demonstrate their ability to advise on and adapt assistive software (e.g. Dragon, Jaws, Zoomtext) and assistive hardware (e.g. Braille displays) to eliminate barriers to usability and to increase usability / functionality; *They provide impact analysis of any significant future releases, including as a minimum: - Any benefits in adopting the new versions / new technology; - Any interoperability conflicts with existing department hardware and software both assistive and desktop and operating system including a scale of severity; *The potential risks, around usability, functionality, security etc.; - Any possible fixes, workarounds or otherwise; - A recommendation to proceed or otherwise; and - Other detail as proposed by the supplier. *They maintain their skills and knowledge of future releases of assistive technology; *Their solution is compatible with the latest versions of the following software: JAWS, Zoomtext, Dragon NaturallySpeaking, and Dolphin Supernova and is able to be used without a pointing device such as a mouse; and Bidders shall ensure that their product does not contravene the Equality Act 2012 in any way and that it complies with WCAG2 standards.	Having worked in central government public sector for over 15+ years Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. For example, early versions of the GDS task list pattern were used in by NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life Long Learning UK. All Texuna user-facing deployments are at least WC3 AA level accessible and have been independently tested and verified. Texuna systems are compliant to WAI AA/AAA usability standards. Usability standards are rigorously enforced and Texuna has ensured that at least AA accessibility standards are implemented in all operational areas of Secure Access during the current contract. All of Texuna's projects are developed with accessibility in mind, and conformance with W3C guidelines to at least Level AA standard. In addition we ensure cross browser compatibility so that modern browser versions and variants may equally well be used. Texuna are extensive users of automated unit testing and continuous integration, and have incorporated accessibility testing to our default testing schemes alongside vulnerability and penetration testing. This helps us ensure that our solutions can be operated without a pointing device and with assistive technologies. Texuna will commit to ensuring that AAA accessibility is provided and will undertake an accessibility audit prior to deployment to ensure that the accessibility and quality standards of the Department are met. Should any issues arise from this accessibility test these will be resolved to ensure that the AAA accessibility standard is fully complied with. The GOV.UK Digital Front End is a major innovation that shares best practices for accessibility, and Texuna have adopted these GDS patterns and libraries and put them into use on several UK government projects and non-UK projects. The constrains of the GDS UI greatly simplifies compliance by providing the tools and prescriptive guidelines necessary to ensure compliance.	

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DfE		Adoption Register	Bidders shall ensure that they will engage with the Department's Escrow provider to create an escrow arrangement that includes (but is not limited to): *Libraries of any and all software components and associated data structures; *Any and all software build instructions, including (but not limited to): Operating System, compiler (including any and all compiler optimisation settings); *Full version histories for each of the above items, including (but not limited to) rationale for changes and audit log; *Volumetric information, including, (but not limited to): number of user accounts, sizes of databases; *Regular back-up snapshots, (taken and transferred at an agreed frequency with the DfE, with evidence of the transfer) being sent to the DfE; *Full lifecycle documentation including (but not limited to): High-Level Designs, Low-level Designs, Test Plans, Test Scripts, Support Documentation, Business continuity plans etc.; *Library of Incident management reports, including (but not limited to) the rationale for incident closures; (This could be quite extensive, and may end up just being a periodic (monthly?) snapshot of the outstanding list of incidents & problems; and *Hosting arrangements, including any inherent DR set-up (this may need to be supplied when the Escrow is set up and then updated only when there has been a change of hosting provider or arrangements).	As per GDS guidelines Texuna are willing to provide IPR and source code to the DfE under an open source licence, and can work with source code repositories such as Github to share code. However it may also be that the DfE want to keep some of the source code private. Texuna confirm that they will engage with the Departments' preferred Escrow provide to ensure that Escrow deposits are made on a regular basis. Texuna has previously used both the NCC and TechUK escrow facilities. We anticipate that the process will follow the key principles outlined below: * The Department and Texuna sign an Escrow agreement with the preferred supplier that defines the scope of the Escrow agreement. * Scope of the service will include the frequency and schedule for Escrow deposits agreed with the Department together with at least the documentation and listed artifacts specified. * Texuna regularly makes deposits of updated code and documentation. Typically we deposit at major releases, i.e. when there has been significant change to the source code, including libraries and data structures. In addition to Escrow, Texuna is willing to work with the Department to maintain documentation and support processes including test plans, incident managment reports and other delivered artifacts into a shared document repository. This will include all the specified artifacts with the exception of source code and backup snapshots. It has the benefit of providing the Department with a single source of shared documents that can be referenced and used throughout the project. This means that the project staff will already be very familiar with the documentation sources that will also be deposited in Escrow. Texuna will work with the team to ensure that the content and scope of the documentation provided is fir-for-purpose and complete while the project is underway.	

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Lancaster University	Education	IT Software Development	Please describe your development methodology, focusing on how it aligns with modern agile development methods. Include details of how teams are structured in typical engagements.	Texuna are able to provide a fully functional project team to work alongside colleagues in Lancaster University and this is particularly appropriate for complex project work. Typically our team comprises the following skills mix: *Project Manager/ Scrum Manager (part time) *Business Analysts / content designers / UX designers (as required) *Technical architect (part time) *Development team staff - (full time) one to many technical specialists who together provide the development skills needed *QA / testers - may be full or part time depending upon the task in hand *DevOps staff (part time) to configure environments and any backup and DR requirements and to ensure connectivity operates correctly. Texuna has provided detailed CV's of typical staff who are available to work on Lancaster University projects in question 7 below. We have included a sample team structure diagram also in response to this question. Texuna use an agile approach for our build projects. From rapid prototyping to launch/go-live we will use a mix of lean startup and timeboxed scrum sprints cycles so that product deliveries are iterative and users are able to provide feedback and direction throughout the build. Following kickoff and initiation, we conduct an Alpha phase where the user journeys are prototyped, initially low-fi and then high-fi journey workflows to confirm user stories, and user test various prototype screen assumptions, usually while the technical infrastructure is being finalised and configured. This is followed by software development sprints which are normally 2 weeks in duration. Each agile sprint will comprise a number of ceremonies: *Sprint planning and backlog grooming to prioritise user stories; *Daily agile standup meetings to improve communications among the team; *End of Sprint demo to engage users and solicit ongoing feedback; *Sprint retrospective (to discuss lessons learned and potential improvements to the process). As the sprinting progresses, a number of activities continue on an ongoing basis: *Continuous integration and continuous delivery activities; *Content design and ongoing documentation; *Automated regression testing and quality assurance. In preparation for a launch event where developed sprints are released formally to live running we perform more extensive testing on completed sprints and formal user acceptance testing is undertaken by the client. We have responded in more detail on our testing activities in 3 below. The following diagram shows how we have applied our methodology to Government Digital Services projects: https://docs.google.com/document/d/1ZkSKFZ2jaTVG1pyZsoimboNceooPHUS_wB7Y8r7YtHo/edit Texuna will also use some Prince2 principles to provide valuable additions such as project documentation, communications and quality strategy which will inform stakeholder engagement, and ensure that risks are mitigated early. These additional services are particularly relevant to complex projects. Standard project documents we will deliver through the lifetime of the project will include: *A communication strategy and plan - To define all parties with an interest in the projects and the means and frequency of communication between them and the project; *A governance process, and escalation routes complementing the communication strategy; *A risk and issue log - To act as a central repository for risks and issues allowing for effective and cohesive risk management. Texuna's practice for all projects is to have an open and transparent partnership with our clients and we regard this as a key enabler for successful, productive communications and joint working which will lead to a successful project conclusion. Communication, discussion and monitoring will be supported through: *Regular face to face meetings with the DfE project management team, typically in person and occasionally by video conference; *Regular sprint demo reviews to identify and address any issues early; *Project plan updates and exception reports - at intervals; *Meetings as required with third parties to identify issues and constraints or to manage risks; *Engagement and empathy building with stakeholders and specialists within Lancaster University to ensure a clear understanding of outcomes and priorities for delivery. Texuna complement our project approach with our information security, quality and service procedures and processes. These are evidenced by our BSI audited ISO standard certifications to ISO 27001, ISO 9001 and ISO 20000-1. Lancaster University will have clear visibility of the high quality and best practice delivery methodology as Texuna work in an open and transparent partnership.	
Lancaster University	Education	IT Software Development	Please describe the component parts of your "definition of done "as defined in the SCRUM project management approach. E. g. how you would decide at the end of a sprint if a developed product can be included in a release.	User stories and other specification of requirements are created as tickets in a backlog tracking system. Texuna typically use Easy Redmine (https://www.easyredmine.com/) to track our agile sprint planning and backlog. We are also able to use other tools if they are preferred by our clients and we have extensively used Pivotal tracker and Visual Studio 2017 for particular contracts. - User story is defined along with Accceptence Criteria _ Backlog items to be included in the sprint are identified in the planning session _ Work is allocated out during the sprint - A ticket is marked as 'resolved' in development once the components in the ticket are coded and all unit tests are passed - Code review is completed _ Texuna QA is responsible for testing the developed code to ensure that it meets the ticket requirements _ Texuna QA is responsible for any regression tests created. Completed work - ie work that will be included in a sprint release is both completed in unit test and completed in internal QA. Client acceptance is the next stage.	

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Lancaster University	Education	IT Software Development	Please give information on how you ensure the standard of written code including methodologies for testing and commenting internally and when handing over to another organisation for ongoing support.	Texuna has the ability and proven track record of providing enterprise-class data collection, integration, publication, workflow, reporting system and service for our clients in which we demonstrate our ability to meet the various aspects of the standards listed above. We maintain a strong focus on security of information and take the responsibility for managing government data very seriously. We believe that success depends upon the competence and quality of our staff resources. We employ high quality staff and ensure that skills are kept current through relevant training and industry certifications. Texuna's project life cycle is modelled around Test Driven Development (TTD) and the Agile methodology. This provides a process of constant testing and rebuilding within iterative development sprints. This also allows the company to implement a constant quality control regime. Each iteration in the development phase stimulates the application of a series of tests to check if the objectives have been met and quality is being maintained. Test cases are written throughout and testing forms an integral part of the development process, so that any errors or omissions in code are identified and resolved at the earliest opportunity. All system releases go through a sequential three stage, independent, and isolated testing process on test, UAT, and production environments. This helps provide improved version control and release freezes to isolate ongoing development and testing work from the UAT process. Testing of an application involves: o unit testing; o integration testing; o functional testing; o regression testing; o performance testing; and o acceptance testing. Texuna strive to ensure that all known bugs and application errors never reoccur. All bugs and their resolutions are maintained in our online tracking system. The recurrence of a bug (even prior to development) is taken very seriously. Testing and QA practices Again, Texuna has a range of well defined standards for testing, all managed via our ISO 9001 and ISO 27001 systems. Rigorous testing takes place at several levels, employing automated and manual tools prior to any user acceptance testing release. Our methodologies for testing match our transparent and collaborative approach to projects. Our teams utilise industry standard tools, processes and technologies Our solutions meet and exceed our quality and interoperability standards. Our testing approach can be summarised as: Unit Testing Unit tests (or dynamic code tests') are tests written by developers. Tests are built based on the specification for the piece of work. The quality of the test is measured by the extent to which it test the specification. Small pieces of code are tested separately as they are built. All tests are executed on each code commit to the source repository to verify the release build. Continuous Integration Continuous integration is performed throughout code development. Unit tests are valuable assets for the Continuous Integration (CI) as they are reused. On a code commit to the source repository, the release process is automatically run to verify the automated build process. Any issues identified on code check-in must be resolved immediately. Continuous integration is the first step in integration testing as it ensures that each unit of code operates effectively within the release. Regression Testing Automatic regression test scripts will be created using one or many of the following automated toolsets WebTest, JMeter, FitNesse, Watir, Selenium. These scripts are run to test the integrity of the whole application and ensure that any new change does not break other parts Test results are stored in the test database and can be analysed for any project/release/date. Penetration Testing A suite of penetration testing tools are used to ensure any code and functionality is robust and withstand attacks. Namely: OWASP Application Security Verification Standard NMap Nikto2 Observatory by Mozilla OWASP Dependency Check FindSecBugs plugin for FindBugs OWASP WAP-Web Application Protection OWASP sed Attack Proxy OWASP Xenotix XSS Exploit Framework Wfuzz - The Web Bruteforcer Fuzzdb - Extended dictionary of attack patterns and primitives for black-box application fault injection and resource discovery. Retire.js Independent penetration testing, if required, can be provided as a separately costed option by specialists such as BSI, who have previously tested Texuna software on	

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Lancaster University	Education	IT Software Development	Please describe any relevant security certifications you hold. E.g. ISO27001, Cyber Essentials Plus etc.	Texuna is registered as Data Controller with the Information Commissioner's Office Texuna is also certified by the British Standards Institute (BSI) for security, quality and service management. It should be noted that the scope of the certification includes all staff in each of our office locations, which are all externally audited by BSI. As a result stringent processes are in place with strict policies enforced to ensure data security is treated with paramount importance. ISO 27001:2015 Security Management Standard ISO 9001:2015 - Quality Management Standard. ISO 20001 - Service Management Standard. Texuna also holds: Cyber Essentials and compliance with the IASME Governance Standard ISO 14000 - Environment Management Standard. Our ISO 27001:2013 certificate and our Cyber Essentials certificates accompany this response. Copies of our other certifications are available on request. Please also note that both Azure and AWS cloud hosting are also ISO27001 certified and this will assure robust security architecture for any solutions that we manage and host.	
Lancaster University	Education	IT Software Development	Please describe how you will comply with the following requirements: *Secure storage of cloud data, including where any data centres used are located and the standards to which they are run. *If cloud platforms are in use such as Azure or AWS then please state the nature of these	Our architecture exceeds that of the UK Government 'OFFICIAL' classification guidelines produced independently by: * National Cyber Security Centre (NCSC) Cloud Security Principles. * Center for Internet Security (CIS) Critical Security Controls. Texuna is an AWS certified development partner and our recommended cloud hosting solution is with AWS. We also host on Azure (i.e. with DfE) . However we keep solutions cloud independent and portable so that they can also be hosted on inhouse infrastructure such as may exist at Lancaster University. Texuna deployments include: * Standard, external-facing Virtual Private Cloud (VPC) Multi-Availability Zone architecture in London Region. * Separate Virtual Network subnets for public application tiers (bastion/management host). * Separate Virtual Network subnet for private (back-end) tiers for Operational databases. * Standard VPC security groups for virtual machine instances. * A management VPC hosting a secured bastion login host to: ** facilitate SSH command line access for troubleshooting and systems administration. ** centralise governance and security tools (monitoring/credentials/vulnerability/configuration management etc.). * Logging, monitoring, and alerts using configuration rules. To eliminate human error, the entire network infrastructure is defined in software providing: * SSL/TLS support when servers are setup. * Transport layer protocols support configured through server installation script. * SSL and other protocol support is specifically and separately enabled for each application. * Full Transport Layer Security v1 and above (TLS) incorporating increased key strength. As a supplier to the Lancaster University, Texuna will commit to complying with the Security Policies needed for proper guardianship in the University. We will work closely with the Lancaster University Security Officers to provide any necessary evidence of our compliance.	

					Picture number
Intro	*Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.*				
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Lancaster University	Education	IT Software Development	Demonstrable compliance with *Data Security Standards *Cloud service security standards *Data Encryption and privacy standards *GDPR	Information security is built on understanding fundamental risks that lead to data loss and/or loss of stakeholder's confidence in the data. Texuna will facilitate Lancaster University using a risk-based approach, whereby risks are identified, understood, mitigated, reduced, accepted - and ideally costed with a risk capital allocation. Texuna is certified ISO/IEC 27001 compliant. Different considerations are: * Texuna and other suppliers' commitments to information security * 3rd party Cloud security and supplychain security * Human resources - traditionally the weakest aspect * Operational and communications security * Segregation of datasets, system environments and access control * Encryption of sensitive data or all data at rest and in transit * Data backup and disaster recovery * Development process and penetration testing * Security Information Management System (incl. incident management) The aspects of our proposed architecture are outlined herein providing the University with a clear understanding of what is expected to give assurance on information security. Active risk management/risk reduction will be conducted by Texuna in consultation with relevant Lancaster University staff. Texuna regularly update a project risk register to manage the risk process, as well as following a security incident management processes to allow realised risks to be corrected and/or prevented in future. Cloud service security We have provided a information about the cloud service security deployment standards we follow in the question above. Cryptographic controls are used for both data in transit and at rest, alongside attack-resistant infrastructure. Protections applied include: SSL between web server and the authenticated user's web browser (TLS 1.2). Data encrypted in transit - AWS Virtual Private Cloud and the Virtual Private Network (AWS Direct Connect IPSec using AES-256, SHA-256). ETL local processing with data encrypted at rest (AES-256) on mirror/staging/ODS/MDS/Warehouse/Mart databases. Texuna automatically applies encryption to data at permanent and temporary storage: AWS Simple Storage Service (S3 buckets). Multi-AZ Relational Database Service (AWS RDS) PostgreSQL. Redshift Cluster, with cryptographic controls applied to personal and confidential data. Access to encrypted data is closely controlled: Encryption keys for ciphering are stored separately from application databases to mitigate risks. AWS Key Management Service (KMS) provides high levels of security, without the complexity of a hardware module Texuna will also ensure that all user access is named access (no allowance for generic accounts/unidentified individuals). All user activity is logged, subject to independent monitoring and has tamper proof audit trail with logs streamed to independent storage. Access permissions are group-based and include database, schema and table based permissions. Data is obfuscated in development environments or encrypted for test and production environments according to information classifications. Data Security: Intrinsic policies, processes and artefacts which will apply to all activities are: Information Security Policy. Information asset register. Risk Assessment Process. Company and project specific Risk Register and active risk management. Employee Security Agreement, contractually bounding staff to observe policies and procedures guarding client data with care. Working policy - security Secure Development Policy - so all the code we produce has minimised risk of malware attacks. Implementation of ISO27001 controls so that, for example, all access require named individual access and authentication, users only access what they must be able to see, full operational process documentation, BC/DR tests and documentation. Access Control Policy Online incident tracking tool (including root cause analysis, corrective/preventive actions). Continual Improvement policy Secure development: Texuna follows a formal secure development policy and development process that is audited and certified by the British Standards Institute to ISO27001/ISO2000/ISO9000. All staff work to a secure standards and technical vulnerability prevention is a key requirement across all code and data. Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code is checked, validated and verify against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's QA team create and run tests for code and system vulnerabilities prior to any production release. This review and validation ensures that code exhibits fundamental security properties to include correctness, predictability, and attack tolerance. Texuna strategies include enclosing each environment securely at the infrastructure level (VPN/firewalls). Therefore, ETL routines deployed on development environments cannot access data on UAT or Production environments. This separation allows for the obfuscation of data while maintaining data integrity and the quality of data samples. This increases the number of developers and testers working with code in parallel without increasing access to sensitive information. Replication	

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Lancaster University	Education	IT Software Development	Competent and experienced development staff (evidenced by CV)	https://docs.google.com/document/d/1HvWcU3o-3XVTaUT1GecUBExpU6FY-xh5frY2R3RS-wQ/edit	
Lancaster University	Education	IT Software Development	Ability to match development skills to projects appropriately.	Texuna will staff and support this contract using staff employed by texuna on permanent contracts. Therefore texuna has complete control over all resources. Texuna will provide a multi-disciplinary and highly experienced project team for each of the Lancaster University projects. Texuna's commitment to providing high quality solutions and services is reflected in the technical abilities of staff and focus on continual professional development. Texuna believes that the success of our projects depends upon the competency and quality of our staff resources and we are continually investing in staff training both internally and externally. The precursor to assigning technical staff to a project is to understand the scope of the project work. We anticipate that there will be at least a business case or service definition prior to Texuna being engaged and we may have completed a detailed proposal document already. This will provide us with a solid understanding of the scope and purpose of the project and also who the intended audience will be. With this understanding our order of planning is the following: _Plan our business approach and architectural approach ** This will provide the overall architecture and we will have a breakdown of the tools and tasks that will need to be completed and the time constraints. We will design the team based on the mix of skills and staff types required (analyst, developer, tester). Once we have identified the tools we will understand the specific skills our technical team will hold. ** As Texuna fulfill technical projects from our own resource pool we have a strong understanding of the capabilities and strengths of each team member. This enables us to match people to requirements with a high level of confidence. ** We have the ability to grow or to shrink the team as the project demands even over the proposed 6-8 months of the contract and beyond. We are able to respond quickly to changing circumstances and manage our resources so that the project objectives are fully met. We also have sufficient internal skills that the team is not exclusively over-reliant on any one member or role. Although different agile methodologies apply to different types or phases of a project (see next diagram) Texuna will blend best practices, taking key aspects of each approach throughout the entire project. <insert diagram showing agile and kanban methods that we used in AP proposal doc for flexible management structure>	
Lancaster University	Education	IT Software Development	Ability to respond to client change within a project.	Texuna encourage change as a natural part of project development - we embrace feedback from users and clients and are responsive to new ideas and opportunities as the project progresses. We work in partnership with our clients to ensure that the work we do together will deliver a practical, easy to use and fully functional system in a cost-effective and timely way. We have different techniques to help us do this whether in a traditional PrinceII style fixed price management with formalised change controls, or in an agile shared risk approach with capped time & materials. In each case, we use design thinking methods and always solicit early user feedback to improve outcomes and eliminate confusion and false assumptions. Our procedures exist to ensure that there is a transparent process and that all stakeholders are fully apprised of progress, ideas and decisions. We also formally publish a RICE (Reach-Impact-Confidence-Effort) matrix to prioritise product/service development, or a MoSCoW (Must Have, Should Have, Could Have, Won't Have) matrix to help govern backlog priorities. The agile backlog of requirements is continuously groomed and updated for sprint planning to reflect new ideas by all project collaborators. The Business Owner and Product/Service Owner is ultimately responsible for deciding priorities. Highest priority user stories are always planned for the next development sprints in this process. For example, at Jisc and with some of our University clients, we use a series of formal Rolling Waves (90 day timeboxes), prioritised with a MoSCoW matrix for contractual purposes, yet operate data to day with Scrum ceremonies and 2-week sprints with a continuously growing backlog. Although Epics may be defined for each Rolling Wave, the main stories are only ever enumerated within a current timebox and only finely detailed on a just-in-time basis for the current and next sprints.	

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Lancaster University	Education	IT Software Development	Evidenced experience of developing a broad range of project sizes across similar industries including *Mobile application development *Website development *Web-based business process systems	Texuna has 15+ years delivering data management and reporting solutions to the Education Sector. We have a broad range of clients including central government, Universities, private companies and EdTech startups including MOOC's like Alison.com. We also work closely with Teacher Training providers and schools to serve our clients. We are a strong advocate of open standards and user of open source tools and libraries so that we can deliver web enabled, high quality, fully functional Enterprise level solutions within tight timescales. Our product deliveries range from small budget single solutions produced within a few weeks to satisfy a particular need such as a reporting dashboard or pilot data collection, to large scale data warehouse projects. We have developed reusable frameworks as an asset that Texuna can easily redeploy for Lancaster University. Mobile application development Texuna is actively working with a small number of startup operations to deliver websites with engaging content. These websites are either delivering help and support (Tweakaboo) or providing a useful budget tracking tool for Pupil Premium spend to busy schools and teachers (EduKit). Our projects are successful because we engage end users directly and implement changes based on their feedback and stated business needs. See Tweakaboo: https://www.tweekaboo.com/ and EduKit: https://data.edukit.org.uk Our interactive projects include: * Tweakaboo: https://www.tweekaboo.com/ - a mobile app that helps parents collect and organise precious moments documenting their childrens growth and development. * Indeemo: http://indeemo.com/ - a mobile ethnography app and qualitative research platform that makes it easy to capture contextual, in-the-moment behaviours and insights that help them better understand their customers. * EduKit: https://data.edukit.org.uk - an app for schools to gather well-being data through surveys and to manage the budget spend to increase the outcome of interventions. These are all mobile ready responsive applications that work on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Our work with startups keep us up to date with the latest technologies and help us migrate best practices to government projects. Server side rendering all work with CSS so that we can easily update and reflect branding changes when needed, and all our public sector projects meet GDS standards. In our architecture approach we build in a REST API management component that will facilitate mobile application integration along with front end develoment. Essentially, we deliver an architecture that is mobile application capable from the start. Website development Texuna deliver web-enabled solutions, an example of which is the National Student Survey Dissemination Portal build for the Office for Students. In this development we make use of latest HTLM5 and CSS3 coding languages, We have built a site built on top of the bootstrap framework. The portal enables users to login and access NSS data relating to their own institution. The site contains user management and link to the backend database using JQuery and PHP which allows users to create custom reports to enable customers to create custom reports on the fly. We further help our client for this project though implementing a consultation portal using Drupal. This enables end-users to access the latest updates on proposed changes to be introduced, provides a means for them to add comments and ideas to improve the proposed work and to engage with the Office for Students on particular topics. Web-based business process systems Texuna are AWS consulting partners. We migrate legacy platforms, develop and host new applications on VMWare, AWS and Azure PaaS platforms for 5+ years. We use Ansible and Terraform to automate the infrastructure and platform configuration as software to give cloud portability. Our development standards ensure code and network is protected from malware attack and vulnerabilities, with automated unit/integration testing for releases and penetration testing prior to live running - eg with Jisc and Oxford Brookes University. Texuna delivers security and identity management, data integration, api-source provider, data registry, statutory report supplier, and sector data collector: – We help with OFSTED/HESA/HEFCE submissions, data governance, management, analysis and reporting needs. - We run discovery workshops, technical development, ongoing support/advice, onsite training and service operations. - We have provided multiple solutions to University College Cork including a combined tech research centre. - We are currently implementing an EDW for Oxford Brookes University, working with Elusian Banner, E5 finance, SAPBO, Moodle VLE as well as learner analytics data and external market sources including Heidi+, DLHE and HESA data. We are also implmenting a pipeline EDW for London Metropolitan University working with SITS, E5, VLE, NSS and DLHE data. _ Texuna recently delivered a hugely successful Jisc EDW on a fixed schedule and budget showing our ability to design and deploy a large and complex solution with tolerance for uncertainty within an agile environment. Texuna also delivered Jisc's Reporting Frameworks, utilised data from Jisc, HE/FE Providers and other relevant external sources (e.g. HESA). _ Texuna work with startup companies that are hyper-agile and super product-focused. As their technology partner we help formalise their approach and help them prioritise feature scope creep by teaching them to put users first. _ We help startups like EduKit using stateless microservices to upload 100's of schools data nightly. Texuna work with student, HE and schools data for many clients including: _ Office for Students NSS results dissemination portal: https://nss.texunatech.com/ _ DfE GIAS: https://get-information-schools.service.gov.uk/ _ DfE Secure Access - an access and authentication platform that provides single signon services to 11 DfE legacy systems _ Standards and Testing Agency ItemBank - an itembank of questions used to produce SATs tests for schools _ DfE (ex-NCTL) Performance Profiles and NQT survey data collection system to collect teacher training data from trainig providers. - Jisc Enterprise Data Warehouse and member services, HESA returns and DLHE data. For HEIs, - Texuna currently work with University College Cork, Oxford Brookes University and London Metropolitan University. We help them manage and analyze student data from admissions, UCAS clearing, enrolment, attendance, participation, attainment, and destinations after graduation, compare UNISTATS data, do curriculum management and work placement data management.	

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Lancaster University	Education	IT Software Development	Dedicated account manager	Texuna will provide a dedicated account manager to oversee the relationship between Texuna and Lancaster University so that we can understand the long term aims and objectives of the Univesity and ensure that we meet the evolving needs. The Texuna philosophy is to engage fully with our clients in a transparent and partnership relationship and we are keen to pursue this goal with Lancaster University. Our account manager will keep in contact with the main stakeholders and ensure that we provide good value through our projects and that we take full advantage of being members of the framework and serve the Universities aims. Texuna are certified to ISO standards for quality, data security and service and this means that we have a strong focus on positive feedback from our clients so that we can continually improve the services that we offer and we will actively seek feedback from the University. As an advocate of standards we will be pleased to register on the portal to record our sustainability policies (http://supplierengagementhe.net-positive.org/) so that we can better serve the University. Our account manager will also act as an escalation in case of any particular concerns with individual projects that we may be engaged upon.	
Lancaster University	Education	IT Software Development	Ability to create good quality service documentation	Texuna provide both fully-managed services and also work with our clients to build and train them so that they are able to manage the servcies going forward. We will adapt our approach based on the particular needs of our clients and of their projects and this will also determine the scope of the documentation. Technical documentation *System management and maintenance processes are all fully documented which facilitates staff training and handover; *Documentation includes at a minimum: o Environment and server/services configuration, o Release deployment scripts and procedures o Maintenance and monitoring procedures, o Backup and Disaster Recovery, and o Encryption and certificate requirements. o YAML documentation for any APIs that have been created Additional measures to support our technical work that are important when we manage any service include: *Internal training involves staff rotation to improve knowledge transfer across projects and resources. *Texuna's internal knowledgebase and operational systems are cloud hosted with BCDR plans so work can continue from any remote location during any unexpected event. *Texuna staff perform multipe roles across multiple offices which extends our recovery capability in extreme events to continue service from alternative locations. *Sensitive data is kept encrypted in the database and in the backups (which are also encrypted). User guides Texuna is able to offer service and support help and guidance in any of the following documentation formats: *Manuals and user guides - there is comprehensive documentation available to users of the Solution. *Videos for uses who are new to the Solution or who want a refresher for infrequent tasks. *Webinar - Texuna can offer remote webinars as a training option which is useful particularly if attendees are geographically spread. These can also be recorded for future reference and playback. * FAQ's help and help texts easily accessible to users from screens within the application Our documenation is well used and well regarded by our users. Optional training Texuna is also able to provide training both to system administration staff and to other users as required. This can include 'train-the-trainer' sessions for advanced end-users (superusers) as we did with the STA ItemBank solution in Q2 2017 which was very well received by attendees. Texuna is able to provide comprehensive training sessions supported by full documentation and test case scenarios. The number of sessions necessary can be finalised in discussions for each of the framework projects.	
Lancaster University	Education	IT Software Development	The capacity to offer maintenance on developed software	Texuna is able to offer either a fully managed service on soiftware developed or is able to hand-over the completed product to Lancaster University so that internal experts fully own and maintin it. Furthermore, Texuna can take ownership of legacy code and operate and maintain that code on behalf of the University if so required. Texuna can create a highly tailored service that combines a range of these extremes to include technical support only or maintenance and minor updates as and when required. Therefore maintenance and support packages are customisable, as the cost model which may include managed 'call-off' days that the project team can use as needed to update and improve any functions or address issues. Each project will be treated as an individual piece of work so that we reflect the extent of the service required specifically for that project. We will make clear the service package options and costs involved for each service once we understand the requirements. We will always welcome discussion with the University prior to finalising any proposal and in particular when options for different approaches are available.	

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Lancaster University	Education	IT Software Development	Ability to meet standards for the processing and storing of personal / sensitive / medical data e.g. ISO 27001 Storage of offsite secure facility (Sail Data Bank)	Texuna aligns information security to our corporate strategy giving it a top priority. Texuna is registered with the Information Commissioner as a data controller and is certified under the ISO27001 standard by BSI across all office locations. BSI audits our controls including data security and system integrity.

Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles:
* avoid highly bespoke permissions on low level granularity (simplicity facilitiates better management)
* encrypt or hash sensitive data where privacy is required
* separate the management of user mapping to groups from the management of access permissions with groups
* integrate to existing enterprise IAM if available (e.g. Active Directory)
* secure private data through restricted database views for Business Inteligence tools.

Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported.

Safeguarding issues / data protection
Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following mechanisms are proposed as a minimum:
*Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines.
*Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition:
 - All data transmitted between the browser and the server via encrypted channel (SSLv3)
 - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply:
** encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256
*A least privileged access control policy;
*Strong password policy with the ability for users to change password if needed.
* Step-up authentication with MFA for power users

Texuna will work with the University to design and implement a suitable data retention policy and implementation for all types of data held. Some data, will be retained indefinitely. Other data, particularly personal and sensitive data may be retained only for as long as it is needed according to GDPR and so suitable mechanisms will be created to remove i.e. archive or delete data according to automatically applied business rules. Anonymised or aggregated data may be retained indefinitely for reporting purposes and trend analysis if needed. | |
| Lancaster University | Education | IT Software Development | Staffing. *Please provide an organisational chart detailing the numbers and structure of any development and support staff that would work with the university. *Detail the proposed key staff including CV's, which must demonstrate their quality and specific experience. *Explain your process for allocating key staff to meet our objectives whilst also ensuring a balance of relevant skills across all disciplines. | https://docs.google.com/document/d/1HvWcU3o-3XVTaUT1GecUBExpU6FY-xh5frY2R3RS-wQ/edit | |

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Lancaster University	Education	IT Software Development	Account management. *Structure for account meetings – regularity, format, location. *Explain how you will deal with managing several priorities and engagements at once.	Account management services are provided so that Texuna is able provide the best quality of service to meet the requirements of Lancaster University under this framework. We will be delighted to explore ways in which we can be of service to the University and further our partnership. We suggest the following main topics for inclusion on each meeting agenda - although additional topics may be required based on the work in hand or proposed: _ Actions from previous meetings _ Summary and discussion from Texuna: ** Projects and topics of interest based on work we are doing in the sector ** Review of work completed on recent projects - any follow up or next steps ** current work including proposals - any particular risks or issues to highlight _ Forthcoming work - discussion with Lancaster University on any projects in pipeline, timings for when bids are needed and future potential requirements. _ AUB and actions summary Format of meetings can be in person or by teleconference depending on who is due ot attend and the volume of work in hand. Texuna propose a meeting is scheduled each quarter and recommend that at least one per year is face-to-face though ideally there would be more. We will be flexible and pleased to attend ad hoc meetings based on the projects in hand and timed to coincide with the University budget cycle. We will be able to accommodate ad hoc meetings or more regular meetings should our workload under this framewrok demand it. Multiple engagements Texuna have a staff complement of 35 staff with the majority employed on our client projects. We have the skills and capacity to provide a fully functional team for multiple engagements all at Lancaster University. We regularly manage multiple engagements and pressures from a portfolio of projects and we view multiple projects at Lancaster no differently. Our projects management staff meet regularly each week to review operational projects and identify pinch points and resource needs. In the vast majority of cases we are able to balance immediate priorities and serve all our clients effectively. To facilitate our discussions we plan technical resource allocations up to 2 months ahead so that we can anticipate any issues early and address them in good time. We have been operating in this way for over 10 years and in that time have a strong track record of delivering our projects ontime to a high level of customer satisfaction.	
Lancaster University	Education	IT Software Development	Administration. *Please outline your ordering and invoicing procedures (providing examples of paperwork where necessary). Please note Lancaster University wishes the administrative process to be as smooth and effective as possible and is happy to embrace electronic process to pay (P2P) processes wherever possible.	To ensure a smooth, effective and clearly defined administration process, Texuna will always provide a proposed payment profile when bidding for work, and if not possible then, at the start of an engagement . When using this process Texuna can gaurantee that Lancaster University is fully engaged at all times. Once a relevant contract has been signed, Texuna would expect to receive a purchase order from Lancaster University to cover the contracted amounts to be invoiced. Texuna will issue invoices for services on the following basis: _hosting charges and/or licence costs where applicable will be invoiced monthly in advance. _development, quality assurance and any other staff resources will be invoiced monthly in arrears. _any other items will be invoiced as agreed Invoices will be sent electronically. And will include date, PO number and rationale for the work invoiced. Payment terms are generally 30 days from the date of invoice and Texuna expect payment electronically by BACS within this period.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Lancaster University	Education	IT Software Development	Reporting. *How you will report to us on development success. *How can you demonstrate effective measurement of the services you provide? *Please provide examples of current / standard Service Level Agreements (SLAs) and Key Performance Indicators (KPIs) which you utilise on a regular basis currently in a successful manner or which you feel may be particularly relevant to this engagement.	Development success Texuna will run projects on agile principles so that there is frequent communication and updates on success achieved at every level: _ the whole team will be involved in daily standups where individual tasks are tracked to completion _ Sprint ceremonies are held bi-weekly to include retrospective reporting, backlog grooming (next priority definition) and user demos of completed product - feedback from users at these sessions is a measure of sprint success _ Our Scrum Master / Project Manager will provide an overall project plan if required to track progress to plan so that all activities are accounted for _ Where specific project activities come to a close - e.g. if there is a Discovery phase prior to implementation, we produce Discovery documentation to record the findings and report on progress achieved at the milestone. The final success measure is where we have accomplished the objectives of the project, fulfilled our obligations and completed the required build and support tasks. We celebrate that with the full project team as each milestone is achieved. We will formally report to the Project Board on completion. We may require acceptance certificates to be signed as a formal record of completion. Effectiveness measures Effectiveness measures include the following: _User feedback and acceptance is one of the most important measures of effectiveness. If users find the new service helpful and easy to use - then it is effective. _ The scoping exercises should highlight measures of acceptance. These are revisited throughout to ensure that the project is on track _ Project scope requirements will drive delivery and so completion of the scope is itself a measure of effectiveness. Service Levels Texuna will normally provision cloud hosted services to be available for 24/7/365 access with 99.5% availability to meet client requirements Texuna's default SLA for a priority one (downtime) issue is 4 hours. In reality experience with AWS shows that unexpected downtime is typically recovered within minutes assuming Texuna DevOps have administrator access to the hosting environment. Similar performance has been achieved by Texuna on Azure more recently. Robust maintenance and business continuity management is included in Texuna's risk management and quality assurance planning. General measures include: *The architecture supports business continuity so that at least two identical server environments are available at all times (i.e. Production, and user testing) - these can be quickly swapped in the case of a major system failure (e.g. hardware issue); *Servers are protected using anti-malware protection and regular patching against security vulnerabilities; *Policy dictates incremental daily backups are taken and kept for an agreed period off-site with the latest backup overwriting the oldest held. Monthly, quarterly and annual full backups are also taken and retained off-site for an agreed period to support ad hoc longitudinal investigations. * Continuous integration / continuous deployment release management can also be used for frontend and backend updated to achieve zero downtime deployments. Availability calculations customarily exclude scheduled and approved downtime which may be required for some releases (e.g. database updates). Any approved downtime will occur outside of the usual working hours to minimise impact of scheduled "out-of-hours" releases. Texuna monitor the services that we are responsible for managing and actively engage to maintain performance within our SLA targets to ensure that we say within our KPI's.	
London Fire Commissioner		Data Platform	Where you intend to sub-contract a proportion of the contract, please demonstrate how you have previously maintained healthy supply chains with your sub-contractor(s) Evidence should include, but is not limited to, details of your supply chain management tracking systems to ensure performance of the contract and including prompt payment or membership of the UK Prompt Payment Code (or equivalent schemes in other countries).	The work to deliver the Solution as defined by the statement of requirements will be performed by Texuna staff. Texuna policy is not to employ sub-contractors other than for minor services for project support or niche areas of expertise that is not availabe in-house . All work will be performed by Texuna employees all of whom have an employment contract with the Company.	

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Intro				Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.	
London Fire Commissioner		Data Platform	Please explain why your company should be chosen to carry out this contract and what previous experience you have of delivering successful innovative Cloud and BI solutions for other organisations, preferably in the public sector. Please supply enough information and supporting details to allow evaluation of your experience and expertise in these areas. Please feel free to include any information of other operations of a similar nature.	Texuna has +15 years delivering HE data and reporting solutions to the UK Education Sector. We serve central government, Higher Education / Further Education / Alternate providers and Schools, as well as MOOCs like Alison.com (12+ million learners).

Many of Texuna's employees have 10+ experience delivering data solutions with the company. Data solutions include structured and unstructured data in the terabytes range, and have been deployed in Educational, Financial and Oil/Gas sectors. Texuna has completed several large projects analysing, reverse-engineering and rewiring complex reporting solutions like SAP Business Objects. We helped JISC in Bristol to integrate 3 distinct business units following a series of mergers by introducing an Enterprise Data Warehouse with columnar data storage and processing for fast BI. This involved working with 130+ data feeds from dozens of sources and over 3 thousand existing reports. We significantly improved performance of report generation introduced historical data reporting and removed technical issues that blocked the creation of complex reports in the past. We also eliminated timeout throttling on legacy reports against transaction systems. We achieved this by creating a data warehouse pipeline from the in-house network to the cloud, and migrating SAP BO infrastructure to the cloud. We also integrated the cloud with the in-house Active Directory server to simplify management and deliver Single Sign-On.

Texuna are currently implementing separate EDW for Oxford Brookes University and for London Metropolitan University, working with about a dozen different systems, several of which are bsaed on the Microsoft stack. Texuna analysts are reverse engineering the SAP BI Suite ETL package in OBU to re-implement the same logic through our metadata framework, allowing the benefits of warehouse automation to be realised.

For the Department for Education - Texuna have deployed several different solutions to the Azure cloud including legacy systems. In some cases these were Microsoft stacks and in other cases open source stacks. On the GIAS project we use the Azure stack extensively to provide high uptime performance for the service.

Platform:
Texuna's data warehouse and business intelligence solutions are Java-based and are designed to be platform and hosting architecture independent. Our solutions can be configured to work on any enterprise level database and in a range of different server configurations. The choice of database and configuration depends on the planned delivery objectives of a given solution. This also means that our solutions can be hosted in a variety of hosting environments including cloud hosting. Texuna provide the option of tightly embedding a stack with a chosen vendor or the alternative of making a solution portable between stacks. We achieve portability throught the use of open source components.
Texuna has actively pursued and used a large number of open source libraries, components and plug-ins. These components are customised and integrated within our solutions to deliver standalone features. This enables us to grow and change our applications in a controlled way to meet the needs of the users. | |
| London Fire Commissioner | | Data Platform | Please demonstrate how your company ensures continued expertise within Microsoft's ever changing and improving technology stack. How would you ensure our core design continued to take advantage of new innovations where appropriate? | Texuna are vendor neutral and work with multiple proprietary software stacks, cloud services and open source software, creating integration connectors between different sources and targets. We also work with proprietary in-house, open source and public cloud infrastructures. This includes working with Azure for the Department for Education (DfE). We migrated existing solutions and legacy systems to Azure as a public cloud, and arranged all the necessary configurations to manage multiple environments and implement continuous deployment in a secure and quality assured way.
* Department for Education - Getting Information About Schools - together with Government Digital Service Texuna initially deployed the legacy Edubase2 system to an AWS cloud hosted environment from an in-house data centre. With the launch of the rebranded GIAS service the whole project was moved to the Department for Education Azure public cloud. We implemented using the Azure PaaS capability to managed the infrastructure for backups, restore, load testing and other security and performance concerns.

Texuna as a systems integrator spend a lot of time linking to the Microsoft stack, in particular with Active Directory to enable Single Sign-On for users on data warehouse and BI projects. Most projects involve integration with MIcrosoft sources whether directly as MsSQLServer or through cloud API for things like Sharepoint or MsDynamics.

Texuna are committed to innovation and our work with various sophisticated clients helps us to see firsthand how new technologies are being deployed and integrated with. Our university clients are heavy users of cloud productivity and Office365 tools, and Jisc is an advanced user of Sharepoint and has recently moved from SAGE to MsDynamics. | |

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London Fire Commissioner		Data Platform	What project management methodologies are you capable of employing and what process and management do you employ to facilitate this?	All texuna project and account managers are PRINCE2 qualified. Many have well over a decade of experience in delivering similar services where they establish a PRINCE2 methodology for all projects. Therefore a clear and clean method of working ensures robust communications, close collaboration and a streamlined process for all stages of a project. These are embedded in our Quality, Service and Security policies, and accredited under ISO9001, ISO20,000-1, and ISO27001. Project Management: The project manager is the primary point of contact between texuna and the customer project manager and team. The project manager has key function in a Texuna project, as follows: To manage and control the project design, development, configuration, implementation, testing and acceptance of the project. Management of the resources allocated to the project. To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverable product. To manage the internal communications and resource allocation and the work of the project team. To ensure texuna's quality procedures, standards and policies are followed and that project documentation is maintained. Texuna recommends that a secure document repository is setup to hold the documentation and that it is accessible by all interested parties. This can be a project wiki, hosted by texuna that can become both a repository library and also a discussion forum as required. Agile methodology: Texuna use an agile delivery methodology focused on user needs. We use a Scrum approach with bi-weekly Sprints, Reviews and feedback from users, together with daily standups. The outcome of our Discovery analysis phase is to allocate the implementation tasks into time boxes. Solution components are implemented in a logical order suitable for on-time delivery - but also based on the RICE Framework (Reach-Impact-Confidence-Effort) so that quick wins and strategic priorities get attention early. Our agile data warehouse methodology has been used on many data projects. Our interactive project management, business analysis and DevOps approach provides robust early stakeholder engagement through agile workshops to embrace change. We guarantee certainty on high risk projects, avoiding traditional EDW pitfalls by reinforcing our agile principles: - Collaboration (business project champion, product owner, developers, users) - Epics typically bounded inside 60-90 day timeboxes, balancing Prince2 gates with Agile delivery - User story, outcome-driven development - Continuous backlog grooming by ScrumMaster, Technical Architect, Product Owner - Production quality "definition of done" controlled by Technical Architect - Self-managed and organised teams with ScrumMaster coordination - 2-week sprints with retrospectives and product reviews - Story-pointed, incremental development with daily stand-ups Our deployment methods have been refined for cloud-first agility. We orchestrate ETL jobs with a metadata driven framework to give fast onboarding and high quality assurance when creating 'the truth' in a high fidelity, high confidence manner. Continuous integration and deployment and automation to remove complexity of setup/operation/improvement provides a high performance, high availability clustered warehouse with extended star schema. This represents the Texuna definition of agile SDLC, with frequent releases engaging users after each 2 week sprint and an early MVP deployment to production. Quality Assurance: Rigorous testing at several levels, using automated and manual tools will precede any deployment to customer accessible test environments so that we are able to maintain our strong focus on quality delivery. Automated unit-tests and regression testing procedures will be utilised during the build phase. A testing procedure (unit-test) is created any task before it is submitted to the code repository. Each time a portion of code is submitted, the new build is automatically mounted and unit-tests are triggered not only for the newly submitted feature, but for all code in the project (regression testing). This will ensure that new code does not interfere with all features and tasks already implemented. Apart from automated unit-tests and regression testing, each release is tested by our quality assurance team with a variety of manual and automatic testing procedures. Automated tests procedures are implemented for every feature, and the release is also tested manually, where applicable (this usually includes UI operability checks based on use cases and standard user behaviour scenarios). Load testing is performed according to specified thresholds with reasonable redundancy, using testing software packages that emulate server load according to predefined scenarios. Whenever a problem is highlighted by our QA team or during UAT, an issue is registered in a tracking system and immediately assessed by the development team. All high priority issues and bugs are resolved in the same release package. Texuna internal monitoring and planning: All customer implementation plans and schedules are published internally to Texuna's operations staff. This forms the basis for our overall plan and enables a complete management of the resource requirements and timings to deliver each customer plan. There is a close working relationship between the project manager and the implementation staff. This is encouraged through the tools that we use to manage our work. Tracking tools, wikis and messaging as well as verbal contact enables the project manager to identify any risks or issues that may arise during our day-to-day work. Texuna holds an internal weekly Operations Meeting where the overall delivery planning is reviewed. This progress review is attended by all Texuna project managers and the resource managers. If there is any potential slippage (or acceleration) of any of the planned tasks within any projects this is flagged at the meeting. Where there is a risk of slippage, mitigation steps are discussed and the approach to managing the slippage is agreed. This can result in reprioritisation or reallocation of resources to address any issues of significant concern so that we maintain our customer service levels. Our projects typically include hard deadlines. We have a strong track record of on-time delivery. Our close attention to the commitments that we have made and day-to-day management practices enable us to meet our deadlines.	

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APRA		A new data collection solution	Describe the availability of Level 2 and 3 support. Your response should address: Channels for support (e.g. email, phone etc.); and Operating hours for various levels of support (provide your answer in terms of Australian Eastern Standard Time).	Texuna provide an ISO20000 certified ITIL compliant helpdesk service that provides level 1, level 2 and level 3 support. We use a customised integrated comms tracking tool to help us coordinate actions and manage service levels to SLAs. Our support services are usually negotiated on a project by project basis so that we can deliver a service that our customers want. Texuna typically provide email, phone and chat support during normal business hours (08:30 - 17:00, Monday - Friday, excluding public holidays. Extended hours can be provided at extra cost. For loss of system / downtime 24X7X365 support is usually provided. Texuna are committed to providing local support in Australia for the project, and have already engaged in discussions with a shortlist of partners we can work with should we not make local full-time hires. This will help us make sure that we can provide not just 1st line support but also more technical cloud-competent resource alongside xbrl business subject matter expertise for 2nd and 3rd level support.	
APRA		A new data collection solution	Describe how your operational support and maintenance approach will address the below: *Managing frequent updates required to the solution due to changes in data collection requirements of APRA; *Upgrade and patching management; and *Scaling the system to meet increasing demand in number of users and transactions. (Users includes APRA business users, system administrator users and Entity users. A transaction is an individual and indivisible operation within the solution.)	Texuna is a firm believer in SaaS, and are happy to offer a fully managed service to APRA. Frequent updates: Texuna offer a fully managed solution and will provide all the necessary changes and updates as required. These will be pushed through Dev, UAT and Production environments in the usual manner to assure quality. Upgrade and patching: Texuna's fully managed software as a service will ensure all necessary upgrades and patching are done seamlessly and without further charges. Where possible Texuna will use cloud SaaS or PaaS on Azure or AWS so that patching is automated. Texuna follow OWASP guidance and monitor security announcements and patch availability and apply all critical patches as soon as is practically possible to avoid unnecessary risk. Scaling users and transactions: Texuna provide a flat fee and do not charge per User or Entity. The system is designed and deployed to be scalable. We use container technology to simplify deployment, allow new resources to be added and to remove resources as and when needed in a planned way. We will provide planned short term capacity expansion at no extra cost where additonal load is predictable and expected to be short term in nature. We don't typically recommend the use of elastic services unless there is a very clear benefit in doing so.	
APRA		A new data collection solution	Describe your solution architecture and how it will meet APRA's functional and non-functional requirements (including: system architecture design, any options, choices or alternative solutions and any design assumptions). Requirements for solution design are set out in the spreadsheet titled DCS RFT – Part 4 – Requirements response (Functional and Non-Functional Tab), and in RFT Part 2, and should be referenced as appropriate to demonstrate how the proposed architecture will satisfy APRA's needs. Your response should address: *The functional capabilities required by APRA; *How the DCS will integrate into APRA's existing technology environment; *Considerations for transitioning the existing Entity data into the new DCS; and *How the DCS will provide flexibility/ability to update going forward.	Functional capabilities: All requirements outlined by APRA can be met by Texuna's solution using a range of configurable components to create a data pipeline from collection, validation, submission and reporting as shown in the diagram below. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1PEfA0fSHZHqJJEKTQb7XT1vEl1biS4vdiBPQMlO8CPI/edit These components will be delivered in the applications shown in blue in the architecture diagram below <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1yyy549eRyxfeJOKBmG3RHfIafviSpxkGkJ3j_Yx30M0/edit In addition to the notes on the diagram: 27a Complies with all relevant web standards. 27c/d is the same tool as used for defining Solvency II and CRD taxonomies in Europe. 27e is the same tool as 27c/d but with a different output. Integration: 12 API based integrations will be delivered using an enterprise level ETL tool - Pentaho/Hitachi VAntara. Texuna have used this tool to devleop many large scale integrations and interfaces. As an experienced system integrator with data warehouse experience and enterprise API design, Texuna are well placed to ensure existing APRA technology environments can be integrated successfully. Entity data: The transition of existing Entity data is a master data migration that Texuna are also familiar with from other collection and data warehouse projects. Texuna will use an ETL and/or API approach to complete integration and migration. Future flexibility: Texuna offer a fully managed service and ensure that future standards, models and xbrl taxonomies will be kept up to date an fit for purpose during the lifetime of the contract.	

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APRA		A new data collection solution	Considering APRA data volumes, complexity, availability, concurrent users and desired response times, provide your recommended infrastructure for the production environment. At a minimum include the number of servers and server specs (or alternatively provide details of your cloud solution).	Texuna will use a cloud approach, and keep the infrastructure portable between cloud offerings. The APRA DCS is hosted in a secure Azure Protect Level environment. The infrastructure is designed to support a high availability pipeline. Apps and RDBMS databases will be deployed in Docker clusters for scalability. Object storage with a message queue will be used to guarantee high throughput delivery of real-time data submission streams. Event triggers will kick off ETL/ELT jobs to process submissions for validation. A Data Vault 2.0 approach will be used to coordinate metadata and governance, providing full lineage and audit trail. The Data Point Modeller is cloud-hosted separately and does not contain any Entity data . The Reporting ToolKit (RTK) is deployed as a local standalone client.

For each environment Texuna expect to use a number of services as follows:
- Single Page App frontend app servers in Docker containers
- API Java app server in Docker containers
- Pentaho ETL server
- MS SQL Server database servers (RDBMS)
- NoSQL for xml and xbrl submissions
- Object storage for other files and artefacts
- Asynchronous message queue for guarenteeing delivery of submissions

Services are contanerised and deployed across Azure Secure Cloud infrastruture. Configuration below is just for production environment (Test and UAT environments are identical).

Virtual Machines: 1xDS14(16vCPU, 112GB RAM, 1TB HDD)
Azure SQL Database: Managed Instance, 8 vCore instance, 960GB Storage
Storage: Block Blob Storage 10,000 GB Capacity, LRS Redundancy, Hot Access Tier,
Redis Cache: 6GB instance
Service Bus: 1,000 brokered connection(s), 10 Hybrid Connect listener(s), 100,000 relay message(s) | | |
| APRA | | A new data collection solution | My organisation has documented information security policies, which have been approved by management | BSI independent auditors certify Texuna to ISO27001 standard. | | |
| APRA | | A new data collection solution | My organisation has specific people or roles that are responsible for information security | Yes, Texuna has a Data Protection Officer and an Information Security Officer. | | |
| APRA | | A new data collection solution | Employees in my organisation agree to terms and conditions that include:
a) a confidentiality agreement, and
b) their security responsibilities | Yes, these are included in standard employment agreement | | |
APRA		A new data collection solution	My organisation outsources the management and control of network or desktop equipment, including offsite storage	Texuna own, control and manage Texuna networks, computing equipment and storage. We deliver solutions on 3rd party cloud services under Texuna control and management.		
APRA		A new data collection solution	My organisation has implemented a personnel security policy	All employees are aware of their security obligations which are contained in employee handbook and signed security agreement.		
APRA		A new data collection solution	Users in my organisation are required to regularly acknowledge their awareness of Information Security Policies	Texuna standards officers conduct regular audits to verify staff adherence to policies and procedures. A control system to manage risks, implement preventive actions and corrective actions as and when security incidents arise is maintained.		
APRA		A new data collection solution	My organisation has procedures established for hiring, transfer, and termination of staff, including the provisioning and de-provisioning of access	HR and IT policy and procedures stipulate the process for hiring, transfer and termination of employment agreements and permissions access management through a centralised identity management system.		
APRA		A new data collection solution	Verification checks on permanent & contract staff are carried out prior to commencement of employment	As a UK company and government supplier Texuna is obliged to carry out verification checks on all new staff whether permanent or contracted.		
APRA		A new data collection solution	My organisation has an implemented physical security policy	Yes, access to all office space is controlled either by manned reception areas and/or biometric readers on office doors. Security cameras/CCTV is used in secured areas.		
APRA		A new data collection solution	My organisation uses physical security perimeters to protect areas that contain information systems	Yes. Server rooms and cabinets are locked. DevOps team are isolated. In general most sensitive information is stored in secure cloud locations.		

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APRA		A new data collection solution	My organisation controls access to facilities through the use of guards, identification badges, or entry devices such as key cards or biometrics	Biometric readers and/or key fobs are in use to gain access through locked doors. Reception space is manned.	
APRA		A new data collection solution	My organisation has implemented procedures to manage authorisation of physical access for staff and visitors	Procedures are in place to authorise physical access for staff and visitors.	
APRA		A new data collection solution	My organisation regularly reviews the list of people with physical access to sensitive facilities	Procedures include the need to regularly review physical access to office spaces and resources.	
APRA		A new data collection solution	My organisation monitors physical access through audit trails, and are potential security violations or faults investigated and remedial action is taken	Audit trails are maintained and CCTV is in place. All violations and faults are logged as security incidents and procedures are in place for reported incidents to be controlled through our Risk Management System.	
APRA		A new data collection solution	My organisation ensures that delivery and loading areas are controlled and isolated from sensitive areas, to avoid unauthorised access	Sensitive areas are isolated to avoid unauthorised access.	
APRA		A new data collection solution	My organisation has implemented policies and procedures to ensure that equipment that is taken outside my organisation's premises remains secure	Policy examples cover Mobile/BYOD devices that have centrally controlled device policies and portable equipment like laptops have encrypted hard disks.	
APRA		A new data collection solution	My organisation has a documented and implemented security architecture	A security architecture is documented and implemented. A security architecture is also put in place for each client solution and based on best practices.	
APRA		A new data collection solution	My organisation has a formal policy implemented for addressing remote access that specifies the remote security mechanism and products used	Policy stipulates that a VPN is required for all remote access. Sensitive applications cannot be accessed remotely without connecting to the local office VPN. The access control policy and setup restricts access to only those staff who are authorised by senior management.	
APRA		A new data collection solution	Audit logs that record exceptions and other security-relevant events are being produced and kept for an agreed period to assist in future investigations and access control monitoring	For sensitive applications all logs are streamed off the production server so the forensic audit trail is secured and preserved.	
APRA		A new data collection solution	Formal management authorisation is obtained before the removal of any equipment, documents or other information assets	All equipment is asset controlled and all documents are stored securely. Management authorisation is required prior to secure removal or transfer of any documents or hardware assets.	
APRA		A new data collection solution	My organisation has an implemented patch management policy	OWASP and other sources are regularly monitored and tested for vulnerabilities and a regular patching review is conducted based on severities.	
APRA		A new data collection solution	My organisation has implemented a server & workstation hardening policy	All servers and networks are hardened including with antivirus, and penetration testing is part of standard release deliveries for major releases. All desktops and laptops are secured with encryption and enterprise antivirus.	
APRA		A new data collection solution	My organisation has an Incident Management Process in place for reporting and escalating security incidents and system malfunction	Yes a full incident management and risk control process is in place. All staff are trained and aware of the incident management process.	
APRA		A new data collection solution	My organisation maintains an information security risk register to record and track information security risks	The information security risk register forms part of an overall risk management and control system.	
APRA		A new data collection solution	My organisation will submit to vulnerability assessments and penetration testing by a mutually agreed vendor at agreed points throughout the delivery lifecycle	This is standard procedure for sensitive solutions where internal penetration testing is supplemented with independent verification.	

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APRA		A new data collection solution	Describe how you will bring innovation (either through delivery methods, or final functionality) to the DCS as part of your solution.	Texuna and BRAG combine to provide a unique perspective as the builder, owner and operator of significant statutory data collection and regulatory reporting service in the U.K. for 15+ years and provider of standards and definitions for financial regulators in Europe and acros the globe. Moving from forms based collection to data based collection is a strength and innovation we share. We bring a curiosity and questioning mindset to our work and will help APRA explore alternative views of the regulatory reporting supply chain - such as two way data exchange, granular data collection, use of internation al standard identifiers, more flexible collection pattterns. We will bring cutting edge experience delivering Data Vault 2.0 solutions on big data hadoop infrastructure for 100TB data sets enabling us to build a truely scalable yet highly efficient and automated DCS. Moreover, we understand the importance of future flexibility and are offering a design that makes it easy for Texuna to provide a fully managed service.	
APRA		A new data collection solution	Describe your approach to the design of the DCS and how the functional and non-functional requirements will be met (including: system architecture design, any options or and any design assumptions). Your response should address: *What solution design methodology will be used; and *What the outcome and sign off process for the design of the solution is and how you could utilise prototyping demonstrations as part of the design process. If plugins or third party software is used in conjunction with the proposed core software product, these should be clearly identified in the Response. Requirements for Design are set out in Part 4 - Requirements – Delivery & Approach and should be referenced as appropriate to demonstrate how your approach will satisfy APRA's needs.	A successful project relies on collaboration between multiple departments and business units both inside and outside the organization. Our DCS design approach is closely aligned to the TOGAF foundation architecture with the flexibility to address your particular needs. TOGAF is a systematic approach to streamline the development process that helps organizations implement software technology in a structured and organised way, with a focus on governance and meeting business objectives. We have combined this with UK Government Digital Service tools and methodologies to ensure we are user focused, colocated with the service owner team an iteratively testing out versions of our work for user driven feedback. Our detailed design approach has both the rigor and flexibility to ensure that all of your critical design constraints are capture; that there is traceability of both functional and non-functional requirements; that all design assumptions are captured and well considered; and that there is adherence to detailed design principles. Our approach consists of five stages. During each stage, we address the considerations affecting the overall design. The following figure provides an overview of the stages. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/198d4vtrw96fgJDdLPix684OiVbRRaR8qBY1xaUSAnnQ/edit> Within the blue printing stage, of our overall delivery methodology, we will draw upon sprints, prototyping, stage boundary management, and project direction authorizations to manage and ensure positive outcomes for the overall design of the DCS.	
APRA		A new data collection solution	Describe your methodology for software development (including: provision of business continuity and disaster recovery applications and testing strategy including unit/component, functional, system and integration testing, defect classification and resolution processes). Your response should address: *How you will deliver out-of-the-box capabilities; *The level of customisation required, and why it is required; *How APRA's requirements will be managed and prioritised; *Considerations for other software activities including testing and defect management; and *How your will ensure your solution complies with relevant controls from the Australian Signals Directorate Information Security Manual. Requirements for Build are set out in Part 4 - Requirements – Delivery & Approach of this RFT and should be referenced as appropriate to demonstrate how your methodology will satisfy APRA's needs.	Texuna use scrum agile software development methodology and prototyping as well formal functional specifications. Utilising software prototyping as a practical means to develop our product while allowing users to test ideas and provide feedback in the formative stages. Backlog management and prioritisation for each sprint keeps us focused on APRA's biggest requirements; whilst, ensuring compliance with Information Security controls. The diagram below shows our methodology for software development. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1rzrJoCNAgQMZhjKIcOkfqcgnvGiNYll-CsFK6veqVUI/edit> Texuna recommend using four environments: DEV-TEST-UAT and PROD to control the testing strategy through unit/component, functional, system and integration testing, user testing and into production. SIT will be completed in the Test environment. For defect management a system of ranking and rating as shown in the figure below will be used to classify and resolve defects. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1Hl1RYmVQ9pZqzMIvfLJz1Dl0g5dXLytxuHiKTd4PBu4/edit> The DCS is highly configurable and metadata driven; out-of-the-box capabilities will be delivered using agile prototyping. Not every requirement is met out-of-the-box, and even standard features benefit from User Experience Design and feedback from actual user research to eliminate frustrations with current/planned features. The APRA solution will deliver outcome-driven journey maps, UI/UX and enterprise integration - configuration and customizationwill fit APRA's exact need, especially when migrating D2A capabilities. Customization allows Texuna to meet the requirements and futureproof APRA to be able to take advantage of advancements to the XBRL specification since the inception of D2A.	

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APRA		A new data collection solution	Describe your approach to implementation of the solution (including: Implementation strategy, Go-Live readiness, exit criteria, and transition strategy). How will you provide APRA with confidence that you can deliver against the Delivery Milestones? Requirements for Implement are set out in Part 4 - Requirements – Delivery & Approach of this RFT and should be referenced as appropriate to demonstrate how your approach will satisfy APRA's needs. For indicative Delivery Milestones, see RFT Part 2 – Specification.	Our approach incorporates standard project practices and accelerators with the flexibility to address your particular needs. Our approach consists of five stages. During each stage, we address the considerations affecting the overall project. The following figure provides an overview of the stages. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/12iPZmWgDMkOnYuCCwC8zkEF7TTDdfXeKn8YiQUqHC4Y/edit> The project roles shall comprise of the following: - Program Steering Committee (PSC), - Program Implementation Team (PIT), - Programme Management Office (PMO), and we will integrate into APRA's IT governance framework. As one our team will progress through the Assessment, Blue Printing, Construction, and Transformation, and Operation stages. We will deliver: - taxonomy and forms management, - systems analysis, - integration, - deployment, - reporting, - change management, - upgrade and - testing cycles. Our implementation strategy involves utilizing high-pace teams working in 3 work streams: 1. Data Migration, 2. Taxonomy and Forms Management, and 3. Data Collection Portals. Our implementation strategy is to use accelerators such as SCRUM, Prototyping, and Data Vaulting to ensure a rigorous and high-pace delivery within the allocated timeframe. These accelerators will be married with tradition project management to address Go-Live readiness, exit criteria, and transition. APRA can have confidence and trust in us to deliver against the delivery milestones. The following diagram demonstrates why. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/15f61vhLrE6M2zau58mRSsvDP7Y5ZBsL-k_OSPd-Qxe0/edit> ADDRESS DELIVERY MILESTONES???	
APRA		A new data collection solution	Describe your approach to developing and implementing the integrations required for the solution, including how you will partner and cooperate with APRA to support APRA lead activities.	Texuna do agile software development based on the Scrum methodology and lean startup style prototyping as an alternative as well as in addition to formal functional development. We identify three key roles: 1. Product Owner - responsible for continuously communicating the vision and priorities to the development team. 2. Scrum Master - facilitates actions between the Product Owner and the Team, and responsible for removing any blockers. 3. Team - self-organizing, consisting of all relevant roles to accomplish the tasks. Our approach to developing and implementing the integrations required for the solution is the continuation of this agile approach, using joint application teams made up of both APRA staff as well as Texuna and BR-AG consultants. We'll integrate APRA staff into our teams and when the integration is APRA-led we will integrate into the APRA team. We expect the Product Owner will be nominated by APRA, and the Scurm Master role may switch between APRA and the Texuna team from time to time, although we will provide shadow support roles when APRA take the lead. The diagram below shows an example of our view of an agile integration development team that is APRA led. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1M3Qwkxya-6R5iDQPugfb5TtTXh_Pj33afHVewr6eA0c/edit Scrum is all about close collaboration. We'll collocate with the APRA team so that there are no barriers to communication. We envisage using the environments of Development, Test, Acceptance, and Production; with our SIT (Software Integration Testing) being conducted in the Test environment - although we are happy to consider alternative suggestions.	

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APRA		A new data collection solution	Describe your approach to data migration. Your response should address: *The method(s) you will use to plan and execute the data migration; *Why you propose to adopt this approach; and *Your data migration plan; and *The toolset(s) you will use to deliver. Describe how these method(s) and tools will mitigate risks in conducting a data migration. Please identify any constraints associated with the data migration, and any accelerators that could be leveraged.	Texuna's Data Vault 2.0 model, framework and methodology governs data migration and rules version management. The migration plan replicates all legacy data into a data lake, with metadata tagging. This facilitates recreation of the schema, business rules and logic upon reading and reporting. Big data is held flat in raw native formats using object and/or NoSQL storage. Texuna's metadata-driven framework delivers dimensional information views of the Vault. Each data element is assigned a unique identifier and extended metadata tags. Ad hoc analytics query the data lake directly. We capture Oracle tabular data, semi-structured data (CSV, logs, original XML submissions, JSON), unstructured data (emails, documents, PDFs) and binary data (images, audio, video) while preserving the integrity of original submissions. Being append-only, unlimited new data sources and schema changes can be added without disruption to audit trail and data lineage.The diagrams below illustrate the approach. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/11PpaYNiMGr-MUtxwCUG37IP9Uori9zxGX0A9bw_UBtU/edit > <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/12_xCGfrBS0jAQSB-Vmx92iO0Huc1eL95bAdv74tI57E/edit> Texuna borrow from Prince 2, Agile SCRUM, Lean Prototyping, and TOGAF. Given stated time and scope constrains - either resources or cost need to flex, resulting in inherent migration risks as shown below. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1Z8AUun4Xp5iCfCIH30MpULvlzvobzvwEHjrO6GKwmE8/edit DV2.0 significantly reduces risks by capturing original data without modification. The residual risks are shown below. Technology further mitigates these risks i.e. low cost high quality cloud storage and fast transfer/processing speeds. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1ST0NqimZBPDQqiPu4jaNa5K4iCPmhp9G34B-jt3VK4Y/edit Our DV2.0 framework uses Pentaho Data Integration to simplify legacy Oracle data migration using Extract-Load-Transform patterns. This Change-Data-Capture accelerator eliminates expenses of specialist tools.	
APRA		A new data collection solution	Detail your approach to testing and provide a description of your test strategy, test case definition and environment management and governance approach.	DCS will undergo rigorous testing to ensure it is free from defect and conforms to specification. Two rounds of UAT testing will be completed: - upon each release, and - final system handover. UAT test scenarios can build upon our internal testing framework and we will help APRA automate UAT test scripts for ongoing quality assurance over the solution and the data (including historic data). Texuna use a combination of tools to complete unit, integration, regression and pentesting, and the results are coordinated through the Allure test coordination suite including Pytest libraries for the DV2.0 metadata-driven framework to verify migrated data and new data returns. We expect upward of 1,000 automated tests to be delivered for APRA. See the diagram below for a high-level description of how we segregate and use environments. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/13zRSahrju1r_V5vH7N92FNFSyK8v_z6OyBkrBdXo17s/edit Prior to UAT kickoff, a test briefing event informs all testers on the objectives, test scheduling and execution. We will confirm roles and responsibilities, incident reporting, bug tracking process etc. including training sessions. Each test plan includes: - Objectives - Types of testing to be executed - How the test is conducted (environments etc.) - Entrance Criteria (starting point assumptions and conditions) - Acceptance Criteria (results that demonstrate success) - Resource required - Error reporting and correction procedure - Test schedule - Test scenarios, scripts and test data needed - Responsibilities and obligations of each party	

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APRA		A new data collection solution	Detail your approach to transitioning the solution to business as usual (BAU) operations (including knowledge transfer, training and rollout plans, and the level of support that will be provided during go-live). Your response should address: *How rollout of the solution will be planned and managed across APRA; *The level of support that will be provided to APRA during transition and go-live (e.g. in terms of internal APRA training and external support provided to Entities); and *Your proposed Entity on boarding approach.	Our team will provide on-the-ground active support across 3 phases: I. Pre-transition – preparation activities for readiness. II. Transition – migration activities from programme to 'Go-Live' under the new regime or future state. III. Business as Usual (BAU) handover – activities to finalise transition and acceptance into business as usual. The following organisation change management activities will be carried out to help APRA move employees and stakeholders from early awareness to final ownership of the accompanying change. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1nFbK9kSvDMvFhfMTRwpgwX-CzmJ7LgeAc7g_wKA9kfI/edit To assure success we will be proactive, systematic, and embedded in the APRA work plan. Key milestones with articulated objectives will create a shared ownership between our own and APRA teams as they are monitored over time. While there is a fundamental need for documentation, it is no substitute for real-time knowledge exchanges implicit in agile approaches. Handover of large electronic files or three-ring binders may be symbolic, but the interpersonal interactions of collaboration – showing, telling, and doing things together over a sustained period - is essential. Engagement starts at the design stage. Implementation sprints and show-and-tell demos will keep engagement and learning high. Early Entity workshops with rotating sample of users willing to participate during the design and implementation stages will be invaluable. Ongoing progress communications with sector Entities will institutionalise the change programme and create opportunities to solict inputs and address concerns. Training videos, launch webinars, virtual ask-the-expert sessions and press releases will promote readiness. The diagram below outlines our approach. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1ZgiCxHgg6EIJkwYHz8RxvIoDOWCG-bvuii-ZG8afswU/edit	

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APRA		A new data collection solution	Produce a draft (three (3) to five (5) A4 pages) Project Management Plan for delivery of the DCS your response from address: *A project schedule detailing the services and associated dates for delivery of the services (including any Delivery Milestone dates); *All necessary details relating to implementation and operation of the DCS, including data migration strategies and plans; *A work breakdown structure that clearly demarcates whether it's yours or APRA's responsibility to perform each task; *A summary of any key delivery dependencies (including between activities completed by Key Consortium Participants, if relevant); *Any assumptions, dependencies, pre-requisites and contingencies; *Your strategies for managing delays; *Resources to be provided by APRA (including APRA personnel commitments); *Methods for deliverable sign off process, project reporting and risk management, *What tools and accelerators you will deploy to deliver value; and *Such other details as may be reasonably required or necessary. Requirements for Project Management are set out in Part 4 - Requirements – Delivery & Approach of this RFT and should be referenced as appropriate to demonstrate how your approach and methodology will satisfy APRAs needs. A high level DCS delivery schedule and a breakdown of proposed Tenderer activities is provided in RFT Part 2 – Specification.	Purpose As a part of a larger programme of change APRA is seeking to procure the software, systems integration and support and maintenance capability to deliver a Data Collection Solution. The purpose of this plan is to provide the delivery guidance for a project to achieve APRA's DCS vision and objectives. Contents Plan Description ...1 Plan Prerequisites 1 External Dependencies 1 Planning Assumptions 1 Lessons Incorporated 1 Monitoring and Control 2 Budgets 2 Tolerances 2 Product Descriptions 2 Schedule 2 Plan Description Our approach divides the program into several phases of work, each marked by the creation of deliverables and their review and approval by APRA. Our focus on schedule and risk management supports on-time delivery by identifying the critical path, developing a baseline at the outset, maintaining and optimising the schedule throughout the program and proactively identifying potential resource and plan adjustments. The project is divided into 3 phases – Design, Implementation, and Support. There are also two bundles of service to be provided by this plan. Plan Prerequisites For the plan to be successful there needs to be set-up or integration with a Program Management Office (PMO). In addition to a project control process that is applied to the primary areas of schedule, requirements, quality and risk on a continuous basis throughout the life of the program. External Dependencies The project has a number of external integration points upon which it is dependent upon. Other external dependencies may arise during the initial project assessment and will be capture in future plans. Planning Assumptions In developing this plan, we have assumed that: 1. All prerequisite hardware and infrastructure will be made available in the timeframes expected. 2. APRA staff required to be a part of the project will be available and there will be timely decision making on APRA's behalf. 3. The Scope of the project as listed in the tender documents may not be changed. Lessons Incorporated We have learnt a lot from a number of regulatory solution implementation programmes we have run for similar regulators across the globe. Knowing what works and what does not work will be beneficial to this project, and our analysis will recognise your uniqueness so that our insights and lessons learnt are relevant and valuable. Monitoring and Control Periodic status reviews (e.g. weekly, monthly) will be conducted to monitor the status of the program. The project control process consists of five key steps: • Program status • Program reporting • Program assessment • Identification of corrective actions • Implementing the approved changes Budgets Budgets for the project have been submitted under separate cover. Tolerances The project has a finish date of 31/3/2018 and in align with the assumptions there is will be no adjustments to the scope of the project. Product Descriptions (Covering the products within the scope of the plan (for the Project Plan this will include the project's product; for the Stage Plan this will be the stage products; and for a Team Plan this should be a reference to the Work Package assigned). Quality tolerances will be defined in each Product Description) Schedule We're ready, willing and able to get started! We propose a tentative 9 months project timeline that begins when you commission us and a 5-year support period. Our proposed timeline reflects our understanding of your goals and deadlines stated in the RFT, along with knowledge we've gained in our previous work with you. Our project schedule is based on the following considerations: • Based on your stated project scope, your objectives, and our experience with other similar implementations, we believe this is a number of the work streams can be	

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APRA		A new data collection solution	Provide a summary of your five (5) year product roadmap, including any planned enhancements relevant to your solution.	Texuna has a significant roadmap in place for the DCS. We assess opportunities for improvement based on feedback, experience, research and known upcoming requirements. Known upcoming requirements are sourced from experience, relationships with industry and from analysis of published RFI and RFT documentation. Our research into data collection has identified a number of areas essential to the success of data collection – awareness, governance, quality, standards and automation. insert image at this link https://drive.google.com/open?id=1aW9a-6hNA63hVBE4EBT3OjRpXgHzBilq In 2018 so far we have migrated the DCS from a server side application to a micro services model with APIs ,GOV.UK Government Digital Service patterns and libraries to maximise modern digital inclusion. This version of the platform is already live in production with Ofsted. Next most immediate items on the backlog are the capability to receive pdf and other file attachments from filers and the integration of XBRL functionality into the Data collection platform using the BRAG toolset. Adding a data analytics capability to the collection platform is the next item on the roadmap. Analysis capabilities will provide a full supply chain of collected data to actionable information. It will provide the foundation for further value add for supervisors such as collection and analysis of granular data and compliance assessment, which are further down the backlog. The backlog shows the current thinking and high level sequencing with closer items being much more definite and time of delivery becoming less definite for future items.	
APRA		A new data collection solution	Identify how you will manage delivery of the end-to-end DCS RFT and highlight previous experience in delivering similar initiatives of the same nature, size and scale of the DCS. Your response should address: *The relationship between each Key Consortium Participant (if relevant) and the structure proposed for management of the consortium; *The nominated single point of contact for all communications in relation to the end to end delivery of the DCS; and *How you will ensure appropriate oversight and delivery by relevant subcontractors.	Texuna as prime contractor take final responsibility for deliveries and SLAs. Patrick Lynch - Texuna CEO - will be the contract manager and single point of contact for the end-to-end project. He will lead the team to ensure maximum alignment and appropriate oversight. Back-to-back terms will be contracted between Texuna and BR-AG to reflect joint obligations to APRA. Texuna will appoint a local partner to help deliver Bundle 2 locally to maintain dialogue and respond to urgent requests that fall within tight SLAs. Two of our team previously worked at senior levels managing regulatory collections. We have deep regulatory and statutory data expertise globally with proven solution integration, delivery successes - even operating collections as a service for 15+ years. Similar projects include Bank of Israel, European Occupational and Pensions Authority, DfE ITT and Ofsted Fostering Collections in UK, and RGS Insurance Services in Russia with Hitachi. Our team has also worked on the SBR (prototype) taxonomy 1. Although we know what drives success, our design will recognise your uniqueness so that our insights are relevant and valuable. We know how to meet your unique needs with the right people, tools, and approach. We use Prince2 and Agile methods with an iterative prototyping approach to design that focuses on User outcomes. We routinely surface risks and address issues early. We will like design to APRA vision and goals through ongoing stakeholder communications as we complete the blueprint and prepare stakeholders for the construction phase as the following shows. <INSERT DIAGRAM - LINK => https://docs.google.com/document/d/1w-Ud0FxrFh1NTslCpSfQgdb-h5fjE-xqg07A0TQBEnw/edit>	
APRA		A new data collection solution	Outside of the proposed consortium (if applicable) describe any partnerships or relationships with other organisations that you have, that are relevant to delivery of the DCS.	Aside from the consortium partner relationship between BR-AG and Texuna for this project, Texuna is also a consulting partner with AWS and is a partner with Hitachi Vantara (owner of Pentaho Data Integrator). Texuna have delivered several big data analytics projects and proof of concepts for Hitachi financial services clients in the past. BR-AG are long standing members of XBRL International, contributors to ISO standards within the financial services space, as well as other membership such as on the IFRS taxonomy consultative group.	
APRA		A new data collection solution	"Describe the Service Levels and other incentive mechanisms which you propose to apply to the provision of the services. Please provide a separate and clearly labelled response for each of Bundle 1 and Bundle 2 Services."	Texuna believe in shared risk and shared ownership of outcomes. We will invoice half of the Bundle 1 contract value based on draw down of team resources on a planned schedule, and half of the total bundle 1 contract value based on successful completions. Billing for successful completions will be based on 10% payments for successful delivery of each of the five key milestones as outlined by APRA in its indicative implementation schedule: 1. Complete phase 1 (Design sign-off) 2. Complete phase 2 (Implementation handed over to UAT) 3. Complete external testing (UAT sign-off) 4. Build complete (production ready for Go-Live) 5. Phase 3 launch (upon successful completion of 90 days of BaU operation after Go-Live) Where any delay is outside our control - e.g. request from APRA to delay a milestone which is otherwise complete - we will invoice 10 days after the milestone date has passed. The other 50% of the cost will be invoiced monthly in advance based on the planned run rate for the month in question. In previous contracts, we have found this approach to be very successful in helping to ensure delivery of required functionality on time. This provides sufficient incentive and responsibility to do what is required to ensure the implementation work is completed on time to meet the milestones without creating financial risks or uncertainty.	

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Intro					

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APRA		A new data collection solution	Bundle 1 Service: Texuna believe in shared risk and shared ownership of outcomes. We will invoice half of the Bundle 1 contract value based on draw down of team resources on a planned schedule, and half of the total bundle 1 contract value based on successful completions. Billing for successful completions will be based on 10% payments for successful delivery of each of the five key milestones as outlined by APRA in its indicative implementation schedule: 1. Complete phase 1 (Design sign-off) 2. Complete phase 2 (Implementation handed over to UAT) 3. Complete external testing (UAT sign-off) 4. Build complete (production ready for Go-Live) 5. Phase 3 launch (upon successful completion of 90 days of BaU operation after Go-Live) Where any delay is outside our control - e.g. request from APRA to delay a milestone which is otherwise complete - we will invoice 10 days after the milestone date has passed. The other 50% of the cost will be invoiced monthly in advance based on the planned run rate for the month in question. In previous contracts, we have found this approach to be very successful in helping to ensure delivery of required functionality on time. This provides sufficient incentive and responsibility to do what is required to ensure the implementation work is completed on time to meet the milestones without creating financial risks or uncertainty.	KPI 1 - Service Availability. Measured 24/7. Target is >99% KPI 2 - Support Line Metrics. All issues received must receive notification within 10 minutes (target is 100%), critical calls must be resolved within 4 hours; high priority calls within 1 working day; medium priority within 3 working days; low priority within 5 working days. Bundle 2 service support will be billed monthly in advance. During each month, any failure to meet agreed Service Level Agreement targets will generate a service credit. Service credits will be applied based on the severity of the impact of an SLA failure. For example, unexpected system downtime that causes the required 99% target to be missed will attract the most severe service credits. Minor non-conformities will not be penalised to the same extent. Service Credits are subject to contract negotiations and will be capped as part of the contract. Service Credits will be the sole financial remedy associated with the SLA's. Earn-back provisions will be included in the service credit formula. There will not be any service bonus associated with above SLA performance.	
APRA		A new data collection solution	Describe how your solution will achieve economic benefit for the Australian economy. In your response, you may consider: *A strategy for maximising Australian industry involvement in the project and enduring Australian industry capability benefit; *Proposed investment in innovation, collaborative research and development efforts in Australia; and *Establishing, transitioning or enhancing skills, knowledge, systems, technology and infrastructure within Australian industry.	Our solution creates the foundation for reducing regulatory burden - regulatory and financial reporting costs on financial institutions and improving data quality. This foundation provides a platform for future cutting edge innovation based our our R&D roadmap. We will leverage our existing contacts in UNSW Business School to help us realise and publish innovations. Regulatory burden is caused by a number of factors including cost of poor data quality, cost of reporting the same data more than once, lack of standards or cost of reporting the same data to differing standards, cost of mapping internal system data to the required return for the regulator. The new DCS is the beginning of a transition to continuous improvement in regulatory reporting rather than the end of a process of replacing D2A. The new DCS will bring simpler reporting for entities and significantly higher data quality leading to greater focus on the analysis of data and improvement in supervisory outcomes. The DCS foundation will lead to enhanced collaboration between regulatory bodies, increased standardisation of reporting definitions, increased use of international best practise identifiers (LEI, report once use many times model) and further improvements to data quality. The changes will involve greater industry and cross-organisation cooperation and will highlight Australia as a leading place to do business with low compliance costs in a well-regulated environment. Success will generate confidence in the economy, its financial stability and the regulatory landscape - much to the benefit of APRA, the financial sector and Australian economy.	

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University of Lincoln		IAMS	How do you suggest/plan to provide an interface to enable Ad-Hoc/affiliate/guest user account creations? The interface must include the ability for multiple account request and creation without having to enter details separately for each account, this should facilitate the ability to use a spreadsheet of user details to create accounts based on that information. The request form should also include the ability to select associated services required for the account, i.e. printing, ID card. Please provide a detailed explanation on your proposal for achieving this required outcome.

Response (word limit – 2500) | Ad-hoc/Affiliate/Guest are categories or types of roles. These can be set up during configuration and different permissions and limiting factors as well as workflow rules can be applied against these user group roles.

Ad-hoc and guest user accounts have congfigurable active period, outside of this period the account is disabled. The solution automatically activates and archives account based on configuration. This approach simplifies the preparation for events in the Universtity when many guests are expected.

There is full support for bulk uploads of users or groups as part of a fully managed service and for initial load of users. The University will also be able to make bulk updates through a csv file upload facility.

Excel based user and groups imports help system admistrators to manage users and user roles in bulk. Roles and permissions are configured through the user interface. This is best practice for security and access management systems because roles and easily maintained and permissions (for services like printing) for uploaded users can be easily updated in the future, which is much harder if permissions are assigned to user directly during a bulk import. | |
| University of Lincoln | | IAMS | Provide a detailed explanation of how your suggested solution is equipped to deliver RBAC. Provide a detailed explanation of your recommended implementation process to achieve RBAC at the University of Lincoln, to include the steps, resource required, best practise recommendations and any other relevant information. Please explain how your system is capable of controlling access permissions in systems that may not facilitate role based access control for, example a self-contained system that may use AD groups for access and permission allocation. Explain how the proposed IAM solution will translate/convert the desired control based on a combination of one or more of role, organisation, level of authority within the University and location into something that AD can use to pass onto the end system.

Response (word limit – 5000) | User permissioning is entirely role-based and is configured using security groups dedicated for different roles. Users are placed in groups to allow access rights to be maintained at a Group level, rather than on an individual user basis. Groups may also contain other Sub-Groups, enabling access rights to be inherited from a parent group. One group may grant access to the whole site while another group may limit access to only some content within the site. Texuna IAM has no restrictions on the number of groups, or the number of users assigned to a group. Groups can be created managed and maintained via a backoffice user interface, negating the need for system or supplier updates as new roles and groups arise. Texuna IAM includes a powerful Group access rule module, which allows for business rules to be defined. These rules permit users access to groups based on any data maintained within Texuna IAM or sourced externally (i.e. based on a user's profile they may be permitted access to a group and hence an application/service). Again, a back office user interface allows for these rules to be maintained independently of any system release, ensuring Texuna IAM is adaptive to changing environments and needs.

Groups and roles can be created in Texuna IAM, but the mechanism for authorisation based on assigned groups and roles may vary depending on the connection in place between the Texuna IAM and the particular application/service. | |

					Picture number
Intro	Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.				

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University of Lincoln		IAMS	Provide a detailed explanation of how new or changed integrations would be implemented and tested without impacting existing functionality or the live environment within your proposed solution. Response (word limit – 2500)	Texuna's solution will be delivered across a number of environments (Dev, Pre-Productiona and Production). When integrations need to be edited, or new integrations are to be added, they are first implemented as the Dev level. This will allow for a high degree of flexibility on testing each aspect of the integration, without affecting any other system. Ideally the integrations would occur like-for-like (i.e. the system being integrated would also have a Dev/Pre-Prod/Prod setup), but if this is not possible, then the environment can be tested at Dev level before being commissioned on the Pre-Prod and, if needed, the Prod environments. The dev environment will be functionally identical to Production at the time of the integration work commencing, and Texuna staff will have full access to review logs, server properties and so on to verify that any changes to the integrations are working as expected, with full investigations possible as needed. New integrations are added using a process known as On-Boarding, which is a tried and tested approach to implementing new integrations with Texuna's IAMS solutions. A full set of specification documents are provided in advance to the integrating application's development team, a number of options are available to them on how to integrate with the IAMS solution. The primary options available are: Option 1 - Full authentication and authorisation via IAM (using single sign on) – facilitated via SAML2. This option requires a SAML component to be deployed to the legacy system. This option allows for Single Sign On between several legacy systems using a cross-system session token (encrypted cookie). Option 2 - Full authentication and authorisation via IAM (using single sign on) triggered by social media profile SAML data population – facilitated via SAML2. This option requires a SAML component to be deployed to the legacy system. Users will register via existing social media accounts. The social media provider will act as an OpenId Connect Identity Provider, and the IAMS solution as the Service Provider. This option allows for Single Sign On between several legacy systems using a cross-system session token (encrypted cookie). Option 3 - Full authentication and authorisation via IAM (not using single sign on) – facilitated via LDAP protocol. This option requires an LDAP component to be deployed to the legacy system, which will facilitate full authentication and authorisation by IAM. Option 4 - Authentication via IAM, authorisation via legacy system – facilitated via SAML protocol (single sign-on) or LDAP protocol (no single sign on) and web-services (SOAP/RESTful). This option requires a SAML or LDAP component to be added to the legacy system, and authentication is provided by IAM. This option proves useful when the legacy system may not be restructured to allow for authorisation SAML/LDAP, hence web-services are offered to synchronise the user database that is required by the legacy system. Texuna will work with the integrating application's development team in advance to ensure that the most approrpriate option is selected and will ensure that development is carried out in tandem with the integrating application. Once the integration has been fully tested our testing team will carry out a full suite of automated regression testing to ensure that the pre-existing functionality and integrations are unaffected. Once this has been completed the integration changes are implemented at the Pre-Production level, which is when User Acceptance Testing can be carried out. Any issues discovered can be fixed, this may necessitate a further update to the Dev level first. Once the UAT testing has been completed and signed off, the work can proceed to Production. Texuna's solution supports Zero Downtime Deployments through a maintenance mode. This operates as follows: The solution is placed into maintenance mode immediately prior to deployment. The maintenance mode allows users to login, authenticate with external systems and review static pages. Users will be prevented from carrying out write operations (e.g. creating/editing accounts, resetting passwords, etc). Deployment then proceeds as follows: Snapshots are taken of database & application servers. Maintenance mode is enabled on application servers. Each application node is updated in turn. The database is then migrated to new version. Testing carried out to confirm changes (i.e. smoke testing). System reverted out of maintenance mode and deployment is complete.	

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University of Lincoln		IAMS	Provide a detailed explanation of how new or changed workflows can be implemented and tested without impacting existing functionality or the live environment within your proposed solution. Response (word limit – 2500)	Texuna's solution will be delivered across a number of environments (Dev, Pre-Productiona and Production). When workflows need to be edited, they are first implemented as the Dev level. This will allow for a high degree of flexibility on testing each aspect of the workflow, without affecting any other system or pre-existing functionality. The dev environment will be functionally identical to Production at the time of the work commencing, and Texuna staff will have full access to review logs, server properties and so on to verify that any changes to the workflows are working as expected, with full investigations possible as needed. Once the workflow has been fully tested our testing team will carry out a full suite of automated regression testing to ensure that the pre-existing functionality and integrations are unaffected. Once this has been completed the changes are implemented at the Pre-Production level, which is when User Acceptance Testing can be carried out. Any issues discovered can be fixed, this may necessitate a further update to the Dev level first. Once the UAT testing has been completed and signed off, the work can proceed to Production. Texuna's solution supports Zero Downtime Deployments through a maintenance mode. This operates as follows: The solution is placed into maintenance mode immediately prior to deployment. The maintenance mode allows users to login, authenticate with external systems and review static pages. Users will be prevented from carrying out write operations (e.g. creating/editing accounts, resetting passwords, etc). Deployment then proceeds as follows: Snapshots are taken of database & application servers. Maintenance mode is enabled on application servers. Each application node is updated in turn. The database is then migrated to new version. Testing carried out to confirm changes (i.e. smoke testing). System reverted out of maintenance mode and deployment is complete.	
University of Lincoln		IAMS	The solution will need to operate 24 hours a day and 365 days a year and be made available to all users, both on and off campus. Please provide a written explanation of how this will be achieved with emphasis on resilience, capacity, redundancy and disaster recovery. You should also include information relevant to how the University will be able to monitor the availability and relevant performance of the system. Response (word limit – 2500)	Texuna already operate a 24X7X365 high availability Secure Access IAM service for the DfE. We have done this both within Eduserv on a VMWare virtualised infrastructre and migrated the service to AWS PaaS with little downtime. RESILIANCE Texuna conduct extensive tests on the service to ensure resiliance, including internal and independent external penetration testing on a regular basis. CAPACITY Capacity is carefully planned, and Texuna test the service limits so we are aware what are the boundaries of acceptable service for each service node. We have demonstrated that the services can be scaled almost linearly as new nodes are added to the service cluster. Currently the system has been tested to support up to 1 million users and over one thousand concurrent logins. REDUNDANCY Texuna provide a default implementation that is based on a high availability cluster, which provides for load sharing and redundancy between cluster nodes. it is also possible to scale the application servers independently of the database nodes, and switch the service into a readonly mode during zero-downtime-deployments during new feature releases. BCDR. Texuna use frequent backups intra day, week, month and year to provide a comprehensive audit trail of system state over time. We use the lastest backups to facilitate disaster recovery, and have conducted BCDR simulations to give high level of assurance that recovery is automated and fast. Texuna also provide an automated recovery feature that enforces a node service restart whenever service is lost for more than 60 seconds, and restarts typically take only a handful of seconds.	

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University of Lincoln		IAMS	The ability to introduce strong Identity and Access Management governance is central to the requirements of the tender, please provide a detailed explanation of how your solution achieves this desired outcome. Provide a detailed explanation on how your suggested solution will enhance and control security of data, credentials and identities. The explanation should also cover how it will be able to cover Privileged Account Management, where this is an additional feature/module it should be costed accordingly within the Appendix B – Pricing Schedule. Response (word limit – 5000)	GOVERNANCE Texuna follow a number of best practices to ensure that IAM is strong and fit for purpose. These include: - leverage Master Data Management sources where possible. - avoid storing master data unnecessarily, and use pseudonymns instead of Personally identifiable information where feasible. - separate high performance, high availability readonly Authentication services from administrative create/update/delete services. - focus on data quality on setup, enforcing data cleansing on updates and work to eliminate multiple identity accounts where possible. - enforce use of Single Sign-On internally where possible, and the use of multiple credentials for different external online services. SECURITY OF DATA, CREDENTIALS, AND IDENTITIES - Texuna IAM is independently pentetration tested by independent experts (most recently by CAPITA in 2018) prior to any major releases. - Texuna staff regularly run updated pentests and performance tests on IAM to ensure it is robust and fit for purpose. - Data is encrypted at rest and in transit according to the latest recommendations and security libraries. - Texuna DevOps follow OWASP guidance and precautions to ensure recommended patches are applied and security practices followed. - Texuna stream all log data off the production environment into an exclusive monitoring and analysis environment to create and protect a forensic audit trail that can be analysed in realtime without impacting the Production service. PRIVILEGED ACCOUNT MANAGEMENT - Privileged accounts are segregated and only used for privileged purposes. - Users with privileges have separate accounts without privileged access for regular everyday use that doesn't require privilege escalation (typical daily authentications and Single Sign-On). - Because hardware security and FIDO2.0 is supported, additional security modules can be enforced for accessing Privileged accounts.	

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Teesside University		Learner Analytics	Tenderers must provide a detailed methodology for delivery of the proposed solution in accordance with University requirements, composed of two discrete elements: - 10% *Delivery of the initial pilot within a single School or a selection of departments across a range of Schools between January to June 2019. *Institutional rollout from September 2019	All Texuna project and account managers are PRINCE2 qualified. Many have well over a decade of experience in delivering similar services where they establish a PRINCE2 methodology for all projects. Therefore a clear and clean method of working ensures robust communications, close collaboration and a streamlined process for all stages of a project. These are embedded in our Quality, Service and Security policies, and accredited under ISO9001, ISO20,000-1, and ISO27001. Project Management: The project manager is the primary point of contact between Texuna and the customer project manager and team. The project manager has key function in a Texuna project, as follows: *To manage and control the project design, development, configuration, implementation, testing and acceptance of the project. *Management of the resources allocated to the project. *To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverable product. *To manage the internal communications and resource allocation and the work of the project team. *To ensure Texuna's quality procedures, standards and policies are followed and that project documentation is maintained. Texuna recommends that a secure document repository is setup to hold the documentation and that it is accessible by all interested parties. This can be a project wiki, hosted by texuna that can become both a repository library and also a discussion forum as required. Agile methodology: Texuna use an agile delivery methodology focused on user needs. We use a Scrum approach with bi-weekly Sprints, Reviews and feedback from users, together with daily standups. The outcome of our Discovery analysis phase is to allocate the implementation tasks into time boxes. Solution components are implemented in a logical order suitable for on-time delivery - but also based on the RICE Framework (Reach-Impact-Confidence-Effort) so that quick wins and strategic priorities get attention early. The initial pilot will be driven by these agile methods until the product and service are deemed fit for purpose. For institutional rollout, the project will focus less on product and service development and more on organization design, training and change management. Our agile data warehouse methodology has been used on many data projects. Our interactive project management, business analysis and DevOps approach provide robust early stakeholder engagement through agile workshops to embrace change. We guarantee certainty on high-risk projects, avoiding traditional EDW pitfalls by reinforcing our agile principles: - Collaboration (business project champion, product owner, developers, users) - Epics typically bounded inside 60-90 day timeboxes, balancing Prince2 gates with Agile delivery - User story, outcome-driven development - Continuous backlog grooming by ScrumMaster, Technical Architect, Product Owner - Production quality "definition of done" controlled by Technical Architect - Self-managed and organised teams with ScrumMaster coordination - 2-week sprints with retrospectives and product reviews - Story-pointed, incremental development with daily stand-ups Our deployment methods have been refined for cloud-first agility. We orchestrate ETL jobs with a metadata driven framework to give fast onboarding and high-quality assurance when creating 'the truth' in a high fidelity, high confidence manner. Continuous integration and deployment and automation to remove complexity of setup/operation/improvement provide a high performance, high availability clustered warehouse with extended star schema. This represents the Texuna definition of agile SDLC, with frequent releases engaging users after each 2-week sprint and an early MVP deployment to production. Texuna internal monitoring and planning: All customer implementation plans and schedules are published internally to Texuna's operations staff. This forms the basis for our overall plan and enables a complete management of the resource requirements and timings to deliver each customer plan. There is a close working relationship between the project manager and the implementation staff. This is encouraged through the tools that we use to manage our work. Tracking tools, wikis and messaging, as well as verbal contact, enables the project manager to identify any risks or issues that may arise during our day-to-day work. Texuna holds an internal weekly Operations Meeting where the overall delivery planning is reviewed. This progress review is attended by all Texuna project managers and resource managers. If there is any potential slippage (or acceleration) of any of the planned tasks within any projects this is flagged at the meeting. Where there is a risk of slippage, mitigation steps are discussed and the approach to managing the slippage is agreed. This can result in reprioritization or reallocation of resources to address any issues of significant concern so that we maintain our customer service levels. Our projects typically include hard deadlines. We have a strong track record of on-time delivery. Our close attention to the commitments that we have made and day-to-day management practices enable us to meet our deadlines.	

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Teesside University		Learner Analytics	Implementation of the pilot initiative must commence from January 2019, and be completed by June 2019. Tenderers must describe how they will support the University in achieving this target, and what pre-requisites must be supplied by Teesside University. Tenderers must attach a project plan to support their response. – 10%	The main pre-requisites from the University are establishing network connectivity via VPN from the project outset, and secondly ensuring access permissions are granted as quickly as possible from the project outset. Therefore it is critical that project governance is in place to allow ownership of these decisions to be firmly established with the project steering committee to avoid ongoing delays and re-justifications for the project. Texuna understands that a pilot start date of January 2019 with a subsequent go-live after June 2019 to be achievable if governance and decision-making process is efficient. Texuna proposes an iterative approach for service delivery. Each iteration may have few deliverables. Following iterations are proposed: 1. Preparation - Jan-Feb 2019 2. Delivery 1 - Mar-Jun 2019 3. Delivery 2 - Jul - Oct 2019 4. Handover & Support - Nov-Dec 2019 The Preparation phase includes following activities: 1. Scope out the change to reach the 'to-be' stage 2. Identify stakeholders and decision-makers and implement good governance 3. Develop communication and training plans 4. Conduct first training for IT and Dev teams 5. Dev/test environment is deployed Deliverables of Preparation phase: 1. Documented requirements for service delivery 2. Specification for 2-3 quick win integrations 3. RACI matrix for project 4. University Dev team has base knowledge of methodology, tools and approach 5. University IT team has knowledge of tool deployment and maintenance Delivery phases 1 (Departmental Pilot) and 2 (Institution-wide) Delivery will include following activities implemented using Agile methodology approach: 1. Implementation of iterations with quick wins systems. Due to short project delivery time, it is important to utilize Agile methodology and invite source and target system knowledge holders (Product owners) into development team meetings. Deliverables: 1. Live environment is deployed 2. 2-3 quick win integrations are implemented, tested and deployed on test environment 3. Go live Handover & Support 1. Completion of manuals and instructions 2. Training and handover sessions for Dev team for maintenance of developed code and establish development processes for dev team of Teesside University 3. Training and handover sessions for IT team for maintenance of live environment 4. Bug fixes and help for live environment maintenance during handover It is expected that teams will be enforced by Teesside University staff. It raises awareness of staff in tools and methodology of development and delivery of service and starts handover and training from day one. Texuna provides up to 7 individual people possibly working in parallel, each with some significant time onsite. These staff will not necessarily all work full time. Our planned resources include: • 1 System Administrator, • 2 developers, • 1 Tester, • 1 Project Manager/Business Analyst, • 1 Senior Architect Texuna suggests University of Teeside to allocate following fulltime resources to the project at least part-time for the duration of the pilot phase of Delivery 1: • 1 System Administrator, • 2 developers, • 1 Tester, • 1 Project Manager/Business Analyst, Resource will be allocated to delivery streams ensuring that at least one member of Texuna and Teesside University staff of the same role participate in delivery. Texuna staff will work hands-on with the University team in loco in a peer programming style of collaboration in order to make the team self-sufficient. Texuna expect a 90 day parallel working collaboration to be sufficient to get the team up and running.	

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Teesside University		Learner Analytics	Tenderers must provide details of the successful completion of a similar project, in terms of scope and timescale for implementation, within the education sector. – 5%	Texuna have provided a number of similar successful completions including some with bigger scope (e.g. Jisc Enterprise Data Warehouse and Members reporting) and some with tighter timescales (e.g. London Metropolitan University, and Ofsted). We are also delivering Learner Analytics with several Universities including the following: Oxford Brookes University OBU needed to more efficiently deliver good quality integrated data to their users and to support their ongoing learner analytics. OBU chose Texuna to help them deliver their cloud Enterprise Data Warehouse as a foundation layer to support an internal programme of learner analytics and student experience improvement. The Solution: Texuna worked with the OBU team to integrate internal and external data sources, and to help simplify the flow of data internally and to regulators. This involved understanding and improving any data quality issues before combining the data together in the warehouse for intelligence and analytics reporting. The project used a Kimball approach to create the data marts around a conformed Enterprise Business Matrix, and combined aspects of the Lindstedt Data Vault approach to simply capture and control of historic data for Type II Slowly Changing Dimensions. The project was broken up into several rolling waves of 60-90 day timeboxes, so that meaningful business value could be delivered to a live production environment at the end of each wave. The first wave involved a Discovery Phase to outline the project detailed planning and priorities. The subsequent rolling waves were used to deliver and deploy according to agreed priorities. Each rolling wave focused on a particular area of the business and source data systems. The final timebox for delivery is expected at end of 2018. By this time the warehouse will integrate all the key internal and external data systems including Finance, Student Records, Virtual Learning Environment, and Statutory Returns. It will also deliver support for any local reporting tools like Qlik and PowerBI as well as the Learner Analytics platform. Contract Start date: November 2017 Contract completion date: Jan 2019	
Teesside University		Learner Analytics	The University is required to demonstrate that it has achieved best value for money in all of its contracts. With this in mind, the tenderers are required to detail any added value that can be offered to the University as part of this tender package, whether for the University as a whole, staff or students. – 5%	Savings are generated as our aligned design and delivery methodology means existing user research can be built upon rather than revisited. The team will find the process of 'Forming, Storming, Norming, and Performing' alongside Texuna simple and swift. Our experience will bring further cost optimization, through realistic estimations, high productivity and swift progress dictated by real user needs. The project also benefits from Texuna's knowledge of the HESA Data Futures data model and several university warehouse projects and automated infrastructure. Our DfE projects also give us know-how to leveraged when delivering to similar needs. For instance: • Our GIAS register of learning providers means we fully understand how to design, provide and consumes GDS technical and data standard APIs for approved lists. In addition, this uses the DfE Azure PaaS infrastructure. • Our DfE Secure Access project will allow us to potentially leverage an initial user base, and to authenticate user via the new DfE sign-in, which uses identical authentication and access standards. • Our National Student Survey (NSS) data dissemination portal and service, gives a strong first-hand understanding from publishing similar data, and support similar user personas with similar needs. Texuna have built a suite of automation so that we can implement Infrastructure as code. This brings significant savings and quality assurance to the deployment of a sophisticated data pipeline in a standard way across various university clients. We eliminate time on non-value-added activities. For instance, through the commitment to a Capped Time and Materials contract and the use of a standard blended day rate for all simplify bookkeeping and billing and remove any conflicts of interest. Lastly, by implementing from and contributing to open source GDS frameworks and through the use of APIs we promote reuse and flexibility.	
Teesside University		Learner Analytics	Is there an information security policy which is approved by Senior Management, regularly reviewed and communicated to all staff?	Yes. Texuna's Security Policy is part of our Information Security Management System. We hold ISO27001 which is audited annually by BSI. Our policies and procedures are introduced to all new staff during induction, made available to all staff at all times and regularly reinforced through refresher training.	
Teesside University		Learner Analytics	Are information security responsibilities clearly allocated to key people within the organisation? Please describe.	Yes, Texuna has nominated standards officers who are responsible for monitoring and maintaining our standards management systems which include information security. Standards offices meet monthly and report directly to our Director on standards compliance.	
Teesside University		Learner Analytics	Is there a policy or procedure for reporting and managing information security incidents? Are there measures in place to ensure that where these occur in relation to University data or systems, the University will be contacted without delay?	Yes, a full incident management and risk control process is in place. All staff is trained and aware of the incident management process. Priority one incidents, including Production system downtime, are addressed without delay and any client who is impacted is kept informed without delay. All incidents are logged and root cause is always identified so that suitable preventive actions can be designed and implemented where possible.	
Teesside University		Learner Analytics	Is the organisation registered with the Information Commissioner's Office? If so, please quote your registration number.	Yes, Texuna is registered as Data Controller with the Information Commissioner's Office. Registration number: Z8150312	

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Teesside University		Learner Analytics	Does the organisation hold any current nationally/internationally recognised standards of information security compliance? E.g. CyberEssentials.	Yes, Texuna hold both ISO 27001 with external auditors BSI (since 2009) and Cyber Essentials and compliance with the IASME Governance Standard.	
Teesside University		Learner Analytics	What physical perimeter controls are in place to prevent unauthorised access to the spaces which house information or information processing facilities (e.g. access tags for staff, CCTV, alarms, cameras, security staff etc)	Client solutions that are managed by Texuna are held in cloud hosting locations in the EEA only. Access to all office space is controlled either by manned reception areas with restricted access to floors and/or biometric readers on office doors. Security cameras/CCTV is used in secured areas.	
Teesside University		Learner Analytics	How is visitor access to buildings controlled?	No physical access is provided to cloud hosted environments. Access to office space is controlled by biometric readers and/or key fobs are in use to gain access through locked doors. Reception space is manned and all visitors need to report to reception to gain access to office space.	
Teesside University		Learner Analytics	What protection exists to prevent damage caused by fire, flooding, man-made/ natural disasters and power failure?	Cloud hosting is provided via controlled data centers with high levels of protection for fire and redundant systems for power failure. Cloud hosting options can include alternative physical locations to provide protection from other types of disaster like flooding.	
Teesside University		Learner Analytics	Are there mechanisms in place to control office and building moves to ensure that information/equipment is not left behind?	All equipment is asset controlled and all documents are electronically stored securely. Printed material has limited use and is securely shredded when no longer needed. All removable media/ laptops etc are encrypted. Texuna has successfully moved offices, although this is done very infrequently. A member of senior management is responsible for office move planning and inspection to ensure nothing is lost.	
Teesside University		Learner Analytics	Is there a clear desk policy and how is it communicated to staff?	Yes, a clear desk policy is in use and all staff is trained during induction. Refresher training and internal audits checks are used to verify and maintain internal procedures.	
Teesside University		Learner Analytics	Are administrative rights to IT systems controlled to prevent employees applying independent configurations that may affect information security? E.g.	Yes. Texuna operates a strong access control policy. All systems and servers are accessible only by staff who have a need to access the system and with priviledges restricted by their role. Our small trusted team of systems administrators only have access at server level and all configurations and server level maintenance processes.	
Teesside University		Learner Analytics	Does the organisation have an officer responsible for IT information security issues?	Yes, Texuna has a senior Standards officer who is responsible for IT security and our compliance with the ISO 27001 standard. We also have a Data Protection Officer.	
Teesside University		Learner Analytics	Are high quality passwords used to access IT systems and are they allocated through a controlled IT process?	Yes. Access to IT systems is restricted only to those staff who need to have access to fulfill their job responsibilities and root passwords are highly restricted and protected in encrypted files with very restricted access.	
Teesside University		Learner Analytics	Are access privileges allocated to ensure the minimum access to information required for business need?	Yes. Access is granted based on the responsibility of the role to be performed where the minimum access is granted.	
Teesside University		Learner Analytics	If mobile working is permitted, are mobile or removable devices (e.g. laptops, handheld PDA's, memory sticks) encrypted? Are there any mobile user authentication measures installed (e.g. VPN or tokens or other 2 factor authentication techniques?	Yes. All Texuna mobile devices are protected by encryption. Access to internal and client servers is further protected by VPN.	
Teesside University		Learner Analytics	Is there a process, which ensures that systems, devices and applications are upgraded regularly?	Yes. All client systems which are managed by Texuna are maintained so that patch levels are maintained. Internal tools and workstations are also kept up-to-date regularly.	
Teesside University		Learner Analytics	Is anti-virus software utilised and updated regularly?	Yes. Antivirus software is installed and kept regularly updated.	
Teesside University		Learner Analytics	Are there controls in place to prevent attack to systems and which supports rapid detection, isolation and removal of malicious software?	Yes. All client systems are monitored. Our solution architecture protects the database from direct access via the internet so that it is isolated from potential attack. Our quality assurance processes verify that the OWASP top ten vulnerabilities are protected against by application of our secure development processes and rigorous testing processes including penetration tests. Our DR processes ensure that any malware can be isolated and removed if required.	
Teesside University		Learner Analytics	Can user action be audited to monitor or detect misuse?	Yes. Texuna solutions have detailed audit logging and a viewable audit trail so that a complete history of changes by user can be accessed through the back office by authorised staff.	
Teesside University		Learner Analytics	How are IT devices erased and/or disposed of securely at end of life?	IT devices including hard discs are cleaned at end of life, by complete replacement of content with random data or reformatting from scratch. If the device is too old to be of further use it is recycled responsibly using a WEEE certified disposal service.	

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Teesside University		Learner Analytics	What back-up/disaster recovery mechanisms are in place to protect University data?	Texuna use frequent backups intraday, week, month and year to provide a comprehensive audit trail of system state over time. We use the lastest backups to facilitate disaster recovery and have conducted BCDR simulations to give high level of assurance that recovery is automated and fast. Texuna also provide an automated recovery feature that enforces a node service restart whenever service is lost for more than 60 seconds, and restarts typically take only a handful of seconds.	
Teesside University		Learner Analytics	If the Organisation handles payments on behalf of the University, are controls in place to ensure Payment Card Industry standards (PCI-DSS) are met?	Texuna do not operate a payment gateway and therefore have not sought PCI certification. Where we do integrate with a payment gateway we ensure they have the necessary certification.	
Teesside University		Learner Analytics	What controls are in place to ensure that transmission of confidential data is secure? (e.g. email encryption)	Confidential data is never sent by email. Texuna use a secure file transfer mechanism to ensure that confidential data is sent and received only by authorised parties and that the data is securely removed at the end of a short period. Our solution architecture is attack-resistant and ensures that data is encrypted in transit using HTTPS secure portals where the information is not 'publically' available. Texuna automatically applies encryption to data in permanent and temporary storage in cloud hosting. Access to encrypted data is closely controlled: Encryption keys for ciphering are stored separately from application databases to mitigate risks. AWS Key Management Service (KMS) provides high levels of security, without the complexity of a hardware module Texuna will also ensure that all user access is named access (no allowance for generic accounts/unidentified individuals). All user activity is logged, subject to independent monitoring and has tamper-proof audit trail with logs streamed to independent storage. Access permissions are group-based and include database, schema and table based permissions. Data is obfuscated in development environments or encrypted for test (UAT) and production environments according to information classification through a Data Protection Impact Assessment (DPIA).	
Teesside University		Learner Analytics	Are test environments used during system development to prevent access to/impact on live data?	Yes. Texuna solutions include 3 separate environments: * Development - New code is first deployed to the development environment so that it can be rigorously regression tested by our quality assurance team using test data. Test data is either provided by the University or may be obfuscated data processed according to the DPIA to remove any personal or personally sensitive data. * UAT (User Acceptance Test) - Releases which are tested are deployed to the UAT environment for end-user / client testing usually against real data which is a copy of Production data so that Production data is not compromised. Access to the UAT environment is restricted to staff who have a need for access only. * Production. - Live, Production, data is always protected during the development and quality assurance processes. Deployment of releases to Production is only made once the quality assurance processes are successfully passed.	
Teesside University		Learner Analytics	Will University data be hosted externally? ("Cloud" services) If so, please complete the "additional section" at the end of this document on external hosting.	Yes. We propose to host the Teesside University solution on our AWS managed environment. The solution will be hosted in a dedicated area, not shared by other clients and systems and is subject to Texuna managed services. For the duration of this contract, Texuna recommends the AWS London region datacenter for hosting services. Data will be retained within the EEA throughout. Please also note that AWS cloud hosting is ISO27001 certified and this will assure robust security architecture for any solutions that we manage and host.	
Teesside University		Learner Analytics	What screening and verification checks are carried out to ensure the reliability of employees that will have access to University data?	Our developers and project staff are full Texuna employees. During recruitment, we complete the equivalent of the BPSS checks so that visa/employability status is verified, address details are taken and references are taken up. All employees at least complete a self-declaration for outstanding criminal convictions and we use other mechanisms to check this where they are available. New employees work under supervision until they have demonstrated their capabilities.	
Teesside University		Learner Analytics	Are Data Protection, Confidentiality and Information Security responsibilities defined in job descriptions and/or employment agreements?	Yes. Texuna maintain a job description for every role. New employees sign an employment contract which specifies that gross misconduct may result in termination of employment. All employees sign a security agreement, which itemizes their security, confidentiality and data protection responsibilities prior to commencing work. We further train all employees about their security obligations and our policies and procedures during induction training. Texuna procedures are contained in the employee handbook which is available to all staff.	
Teesside University		Learner Analytics	What training / guidance is offered to staff around Data Protection, Confidentiality and Information Security and how often is this provided?	Texuna standards officers conduct regular audits to verify staff adherence to, and understanding of, policies and procedures. Internal refresher training sessions are run at least annually and are given by the local office Standards Officer. A control system to manage risks, implement preventive actions and corrective actions as and when security incidents arise is maintained.	
Teesside University		Learner Analytics	Are staff made aware that unauthorised or inappropriate use of systems/ data is an offence under the Data Protection Act?	Yes. All employees are made aware of their security obligations through our contracts, documented procedures and this is reinforced through training. Our ISO 27001 security policy states our adherence to legal requirements and specifications to the data protection legislation.	
Teesside University		Learner Analytics	Are staff made aware of new and emerging security risks and threats and provided guidance to avoid risks? (e.g. spam emails/ phishing emails etc)	Texuna actively manages information security risks for all information assets owned or managed by the organization. All workstations are installed with anti-malware software which is kept up-to-date. Our firewalls are configured to identify and isolate suspicious emails or attacks and staff are made aware of the risks so that they ask/report to our systems administrators if anything appears suspicious. Potential security incidents are recorded and investigated with root cause identified so that reoccurrence can be prevented where possible.	

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Teesside University		Learner Analytics	Do staff understand how to recognise information security incidents, and when and how to report them?	Texuna confirm that as part of our ISO 27001 Information Security and ISO 9001 Quality certifications we have a mature and functioning set of processes for recording incidents and potential non-conformances.

A comprehensive issue reporting process is in place across the entire organization. All staff is fully trained to identify potential security incidents. In accordance with our ISO certifications, issues are dealt with as security incidents unless proven otherwise. An online tracking tool is utilised to register, track and manage each such incident.

Our processes ensure that all recorded incidents are assessed to determine root cause and that we address the root cause so that we prevent the recurrence of the issue wherever possible. Root cause remedies are addressed as corrective actions are implemented to rectify. In addition, our problem management process may be used to record any preventive actions that may have been identified. Problem management takes a wider view than an immediate resolution of the issue and ensures that processes are also put in place to prevent recurrence of similar incidents. This process serves to increase security awareness and strengthen security integrity going forward.

Any raised incidents can only be closed after senior and authorised members of staff have reviewed the issue, any possible impact and corrective/preventive actions associated have been identified and addressed.

Texuna has nominated Standards Officers in each office whose role is to ensure that our standards processes are operating effectively. They are also responsible for management reporting to our CEO who strongly advocates our standards processes. | |
| Teesside University | | Learner Analytics | Describe the external hosting, confirming whether your organisation will host the data or whether there is a third party host. | Texuna is an AWS partner and we recommend a cloud-hosted fully managed service on AWS as standard.

This option is presented in our pricing. If Teeside University have a strong preference for alternative hosting options, Texuna will be pleased to discuss the requirement. | |
| Teesside University | | Learner Analytics | Is there a written contract in place between your organisation and the third party host? | Yes, Texuna is a certified consulting partner of Amazon Web Services.

As an AWS certified consulting partner, Texuna are committed to maintaining a minimum level of staff certifications as qualified business experts, solution architects, developers and DevOps administrators. Meaning Texuna have worked extensively with AWS platforms and services over the last 5 years.

We have used a range of AWS services in a number of projects to collect and manage data flows and data warehouses. We have deployed stateless and serverless technology as well as ETL PaaS technology to orchestrate dataflows between sources and streams of data to create efficient workflow pipelines. | |
| Teesside University | | Learner Analytics | In which country will University data be hosted? | Texuna will ensure the solution is physically hosted exclusively within the UK and that data is never transmitted or transferred outside the EEA. We recommend the AWS London region for our managed hosting. | |
| Teesside University | | Learner Analytics | Is any third party assessment available to provide assurance against the security of external hosting services? If so, please provide evidence e.g. ISO27001 certification. If answering yes to this question you do not need to answer the questions below. | Yes. AWS cloud hosting is ISO27001 certified and this will assure robust security architecture for any solutions that we manage and host. The AWS(London) region is covered by the AWS ISO 27001 certification, see: https://aws.amazon.com/compliance/iso-27001-faqs/

BSI independent auditors certify Texuna to ISO27001 standard. | |
Teesside University		Learner Analytics	How quickly can the external host react to security vulnerabilities?	Each public cloud provider has their own policy for applying patches to their infrastructure stack which is generally significantly faster than inhouse alternatives. For this reason, Texuna opt for cloud-managed infrastructure.	
Teesside University		Learner Analytics	Will data be encrypted? Please describe.	Data is encrypted at rest and in transit using AES, SSL and TLS.	
Teesside University		Learner Analytics	What retention rules are applied to data stored within the hosted service?	The retention policy is customizable based on the University requirements.	
Teesside University		Learner Analytics	Will the third party host delete all University data securely if we decide to withdraw from the service in the future? Will this deletion ensure data is not recoverable?	Texuna will ensure that all data is securely deleted from the cloud host without possibility of recovery.	
Teesside University		Learner Analytics	Are there audit trails in place to allow monitoring of how University data has been accessed?	All activities on the warehouse create an audit trail which can be independently reviewed to monitor behaviour.	
Teesside University		Learner Analytics	Are there facilities to allow the University to access a copy of its data on request and in a re-usable format?	Yes, the University will have access to the warehouse and can also request access to backups of the database in a standardised database format.	
Teesside University		Learner Analytics	How quickly could the supplier restore University data (without alteration) from a back up if it suffered a major data loss?	Texuna maintain a robust set of Business Continuity and Disaster Recovery processes which are regularly tested. It is possible for Texuna to restore all services within a matter of hours, and we commit to a 4 hour SLA to recovery for any downtime. Restoring data only to an existing Production service can be done within 1 hour.	

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Teesside University		Learner Analytics	Is penetration testing carried out?	Texuna carries out penetration testing on all delivered solutions to ensure our software is secure from known vulnerabilities. From time to time our customers also engage independent penetration testers to check solutions and lessons have been learned from this process and incorporated into Texuna's standard practices.	
Teesside University		Learner Analytics	List here any information security controls, which your organisation has over and above those described above and/or any other information which may help to reassure the University that data will be adequately protected.	* Standards Officers at Texuna conduct monthly risk reviews to examine the organization level risk register. These reviews ensure that significant risks are identified, owned and responded to by means of security controls and mitigation strategies. * The Texuna Project Manager maintains a project level risk register to identify and control any project-specific risks and ensure that appropriate action is taken.	
Teesside University		Learner Analytics	The solution must provide advanced learning analytics relating to the engagement, performance and achievement of individual students.	Texuna will provide a Learner Analytics solution to Teesside University based on our HE Data Warehouse framework product which is also available via the Digital Marketplace, see: https://www.digitalmarketplace.service.gov.uk/g-cloud/services/241676207976624 Texuna have designed this data warehouse metadata framework and Data Vault 2.0 approach to fit the needs of Higher Education institutions like Teesside University so that they can get the best value out of their data across all integrated data sources in the University. For this project, Texuna will work with staff from Teesside University to focus on their Learner Analytic requirements and to ensure that the project outcomes enable the University to measure the engagement, performance and achievement of their students. Texuna has a strong understanding of the context in which Teesside University is operating. We are already working with other universities, with Oxford Brookes University and London Metropolitan University to implement a data warehouse solutions with a focus on learner analytics and student experience. We have a long-standing engagement in the HE sector including knowledge of the data context in which Universities operate including the HESA Data Futures initiative, statutory returns to HESA and use of available tools for University administration. We also work with the Office for Students to publish the NSS results annually and so have intimate knowledge of that data. Any leaner analytics analysis must utilize both data available in the sector together with University specific data to generate accurate and high-quality Learner Analytics metrics and trends.	
Teesside University		Learner Analytics	Student engagement, performance and achievement must be provided at individual, module, course and School levels.	Texuna have mapped different university data schemas to the HESA Data Futures data model, and have developed a general approach to linking student, module, course and school levels so that costs and profitability can be better understood. We have also created and used a student dashboard to improve attainment. School level challenges we overcame to ensure successful learner analytics include: * Transparency of data, lineage and creation of a data catalogue * Interacting with institutional tools which store data in ways not always designed for sharing * Interacting with users of institutional tools and helping ensure that data is coded for learner analytics * improving upstream data quality and implementing robust data transfer processes to support analytics * consider ethical issues so that analytics are action focused rather than demographics based * Align with internal university ethical practices. A pragmatic view of student engagement is required at a module and course level, looking at different types of data to measure attendance and participation. For example: 1. via VLE metadata; we look at how often a student accessed the module/course and time spent viewing it, 2. via library systems through the use of QR codes when taking out books, 3. via wifi data usage (this is more nuanced and difficult to quantify). We look at student engagement at an individual level in several different ways: 1. Learner Analytics to analyze all of a student's learning patterns overtime (through the use of several sources of data sets such as attendance monitoring system data, physical access cards, other system logins, weblogs etc.) to try and understand what it takes to optimize student experience. 2. Making associations between engagement type and frequency, and the achievement of student outcomes based on the patterns of previous students.	
Teesside University		Learner Analytics	The solution must provide effective analytics for both on campus and distance learning students.	On campus student participation is often more difficult to capture and analyze data given the freedoms available to the student and the reluctance to collect and aggregate data around student activity. The analytics project needs to work with students and get their consent to more closely monitor the student interaction on campus with a view to improving the student experience and how they engage with the School as well as with the course and modules. Faculty needs to be included so as to allow bone fide opportunities to structure and capture engagement and participation adequately such as mid-term coursework submissions and performance. Therefore curriculum design has a large impact on the effectiveness of analytics on campus. Distance Learning analytics is driven from the VLE data and weblogs. Typically distance learning contribution is much better structured and collects sufficient data to allow an informed view of learner engagement, and the student expects feedback on their progress.	
Teesside University		Learner Analytics	The solution must be capable of drawing upon established and emerging data sources from across the University to provide consistent and robust learner analytics.	All good analytics is based on adequate collection of relevant data - and it isn't always obvious what data may be relevant or not. The Texuna solution is based on establishing a data pipeline to a data warehouse. This is designed to be flexible to onboard and remove data sources and systems over time. We will connect with the established data sources at Teesside University so that a robust and consistent Learner Analytics solution can be delivered. As new data sources emerge or as any data source changes and new relevant data is introduced, our metadata-driven framework makes it easy to integrate the new data so that it enriches the dashboards and reports already established. The EDW framework is flexible and future-proof and provides the University with a scalable and cost-effective solution to both current and future needs.	

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Teesside University		Learner Analytics	The supplier must describe the methodology utilised to assess student performance and engagement based on the range of identified data sets.	When building a learner analytics model, Texuna focuses on building Reproducible Analytics Patterns that allow model findings to be fully automated in code. This means the model needs to be version controlled so that it can be iterated over time as new data is added and old data is discarded for the purposes of testing the validity of the model. From the outside a range of data is available and the task of building a model requires very significant dimensionality reduction so that only the relevant data (independent variables) are used to predict the dependent variable outcomes for engagement and performance. MOdels will be built using a predefined subset training dataset, and model results will be backtested against other data to test for validity. In this way, iterations of model testing will allow improvements to be made and tested for validity. A whole range of data sources will be iteratively used to try to establish correlations between independent predictors and learner outcomes. This could include VLE data, data submissions to cloud storage, library loans, physical door access to classrooms/labs, attendance data, survey data (files/sheets in addition to VLE) as well as system logs and weblogs. Going beyond courses and subject material information, access to club participation data or wellbeing centers can all add context when understanding student engagement and performance.	
Teesside University		Learner Analytics	The supplier must outline how distinct datasets on a consistent theme (e.g. different approaches to recording attendance) can be aggregated.	Data needs to be munged from multiple sources, and often this means creating derived data that is more suitable for integration. Ultimately the objective is to create a set of independent variables that can be used as predictors of performance and engagement. Texuna use our expertise in data pipeline and Extract/Transform/Load tools to mechanically create the required datasets. We have experience of doing this for a number of universities for various themes - not just learner analytics. In each case we work with local staff and experts to best determine the most useful data and how it can be structured or derived to give the optimal inputs for analytics purposes. We use the Kimball star schema approach and Enterprise Business Matrix to ensure that the way to look at data is conformed across datasets and easy to navigate. This allows aggregations to be done seamlessly.	
Teesside University		Learner Analytics	Documentation on WCAG 2.0 compliance must be provided in order to fulfil the Disability & Equality Act 2010 requirements. The solution must be compliant with the EU Web Accessibility Directive.	Having worked in the public sector for over 15+ years Texuna have a deep understanding and practical experience of the requirement for accessible systems. We understand that the EU Web Accessibility Directive makes it a requirement for Universities to ensure that their websites and apps comply with the latest Web Content Accessibility Guidelines (WCAG) at level AA (currently WCAG 2.0). Texuna systems are compliant to WCAG AA/AAA usability standards. Usability standards are rigorously enforced and Texuna will ensure that at least AA accessibility standards are implemented in all operational areas of the solution. In addition, we ensure cross-browser compatibility so that modern browser versions and variants may equally well be used. Texuna's minimum public sector benchmark is WCAG 2.0 AA level and we have consistently delivered and tested to this standard for all clients over many years. Today we have moved from server-side rendering to Single Page Apps with RestAPI to the backend. We now use WAI-ARIA features to improve accessibility for digital inclusiveness as per GDS guidelines. We now test for various scenarios: CSS is turned off, functionality is keyboard accessible, non-text content has text alternatives, and functionality remains usable without JavaScript. Our standard approach uses auditing tools and test across platforms including with actual screen readers (VoiceOver). We are able to provide evidence of compliance as needed by Teesside University.	
Teesside University		Learner Analytics	The solution must be compliant with GDPR requirements.	Texuna aligns information security to our corporate strategy giving it a top priority. Texuna is registered with the Information Commissioner as a data controller and is certified under the ISO27001 standard by BSI across all office locations. BSI audits our controls including data security and system integrity. Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: * avoid highly bespoke permissions on low-level granularity (simplicity facilitates better management) * encrypt or hash sensitive data where privacy is required * separate the management of user mapping to groups from the management of access permissions with groups * integrate to existing enterprise IAM if available (e.g. Active Directory) * secure private data through restricted database views for Business Intelligence tools. Permissions are flexible and apply at multiple levels. For example, student personal data can be can be restricted only to user groups with a 'need-to-know'. Restrictions can be applied at multiple levels and we will work with the University to define access roles and groups. The management and migration of historical data from the legacy system require special attention. Texuna's data warehousing and ETL experience ensure the highest level of protections are used during initial classification and migration. Secure ETL scripts will create a customised set of processes to migrate and, if necessary, cleanse the data. Data upload to the cloud hosting environment will be configured so that it is secure and a potential way to accomplish this is to configure a direct connection ie a database access login to enable VPN connection between the current source and the cloud hosting environment. Several of Texuna's customers consider the Warehouse to be a centralised place from which data access and GDPR requirements can be controlled, with data encrypted at rest and in transit and where automated audit logs provide complete transparency over who has accessed what data and when.	
Teesside University		Learner Analytics	The solution must integrate effectively with the institutional student records solution, SITS.	Texuna already work with several student record systems and already integrates with SITS at the London Metropolitan University.	
Teesside University		Learner Analytics	The solution must integrate with the institutional VLE (Blackboard Learn), and be compatible with all leading VLEs.	Texuna already work with Moodle and Blackboard VLEs to extract data for analytical purposes. We work with Blackobard at Oxford Brookes University.	

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Teesside University		Learner Analytics	The solution must integrate effectively with our institutional Library Management System (Capita LMS). The solution may draw data from Talis Aspire and Summon.	Texuna already work with several library management systems and are familiar with most data interfaces and data extraction strategies.	
Teesside University		Learner Analytics	The solution may be required to draw from a range of other data sources relating to student engagement, including attendance monitoring, survey data and software usage.	Over 15 years Texuna have worked with HE and FE system platforms for finance, HR, VLE and student information systems including cross-sector data systems such as DLHE, HESA, HEIDI+, NSS, Unistats. Texuna use the Pentaho Data Integration tool which has excellent support for integration via Web Services, covering both REST/JSON and SOAP/XML to consume 3rd party APIs. This is agnostic approach allows Teesside University to target any technology stack, including the ability to extract directly from common RDBMS.	
Teesside University		Learner Analytics	The solution must integrate effectively with our existing timetabling system (Syllabus Plus).	Texuna use the Pentaho Data Integration tool to check web-service availability. PDI consumes RESTful services via built-in PDI Carte web-server and can expose REST API to external systems. We use the REST Client Transformation component to integrate with various systems with published APIs and this can be used to create a bridge to the timetabling system Syllabus Plus.	
Teesside University		Learner Analytics	The solution may be required to draw from a range of other data sources relating to student engagement, including survey data and software usage. Please outline how the integration of other sources of data would be achieved, including technical specification of how a generic "external system" would transfer data to/from the solution, and the extent to which this is configurable to add additional sources of data after the initial implementation.	Texuna uses the Pentaho Data Integration tool which has hundreds of built-in components for connections, transformations and controls and is widely used by developers in the open source community in particular. This tool provides the ability to make direct connections to all the listed Teesside University data sources, regardless of source system format or technology. This includes API access to cloud systems where direct database access is not even possible. Texuna are currently deploying an Enterprise Data Warehouse with e5 and SAP at Oxford Brookes University along with Moodle, Banner and other proprietary systems. Similarly we are working with London Metropolitan University, integrating data even while existing source systems are being migrated to the could and legacy systems are being replaced. Texuna's metadata driven framework allows these changes to happen seamlessly without significant rework.	

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Teesside University		Learner Analytics	Staff Interface – 6% *The solution must provide an intuitive and easy to use analytics dashboard/interface for staff usage. *The dashboard/interface should be customisable for the University, including appropriate branding. *The dashboard/interface should present data in a clear, consistent and visually appealing manner. *The dashboard/interface must allow a range of access levels, including Administrator, Senior Manager, Course Leader, Module Leader and Personal Tutor. *The solution should allow the recording of additional information concerning individual students, e.g. records of meeting etc. *The dashboard/interface should highlight specific students defined as 'at risk' on the basis of the data supplied. *The solution should allow the recording of specific interventions. *The solution must allow staff users to "override" or "cancel" the flagging up of an at-risk student, where the solution has misidentified an issue based on the received data. *Over time, the solution may allow the identification of the most effective intervention within a particular context. *The display of data to staff must be compliant with data protection regulations. *The dashboard/interface should be compatible with mobile devices, including iOS and Android.	Texuna will deliver a configured solution to the exact needs of the Teesside University and integrated a number of distinct University's systems based on differing technology. A highly bespoke service will, therefore, be available to meet all current needs, with the flexibility to incorporate future needs easily. The solution is a very user-friendly system with an intuitive user interface. The system will be designed to industry best practices for user interface design. The solution will be designed collaboratively with University stakeholders to ensure that there is a focus on usability at the front end and not just implementing back-end functionality. Intuitive design is paramount to minimize help and training needs while ensuring the requirements are met. Simplicity and straightforwardness are key. Our client's design standards and style (existing CSS) are utilised where available or modified so that it is suitable. We will ensure that we conform with complementary systems at the organisation. Complex workflows are prototyped to ensure usability and content language is tested with end users with FAQ's to facilitate help and support. Our screens are coded using responsive web design principles to ensure that they are accessible and usable on any device type including mobile devices and laptops. In addition, the current range of popular browsers is supported. Texuna system design defaults data access to " nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported. End users have different functionality and integrated services based on their account profiles. Profile data is used in business rules to give customised access. These rules are configurable via an administrator web interface. User permissions are entirely role-based and are configured using security groups dedicated to different roles. Users are placed in groups to allow access rights to be maintained at a Group level, rather than on an individual user basis. Groups may also contain other Sub-Groups, enabling access rights to be inherited from a parent group. One group may grant access to the whole site while another group may limit access to only some content within the site. Solution has no restrictions on the number of groups or the number of users assigned to a group. Groups can be created managed and maintained via a back-office user interface, negating the need for system or supplier updates as new roles and groups arise. Texuna solution includes a powerful Group access rule module, which allows for business rules to be defined. These rules permit users access to groups based on any data maintained within proposed solution or sourced externally (i.e. based on a user's profile they may be permitted access to a group and hence an application/service). Again, a back office user interface allows for these rules to be maintained independently of any system release, ensuring solution is adaptive to changing environments and needs. All aspects of the user interface and page-flows can be customised. Texuna are fully able to support brand identity, future changes and differing customised displays for particular user groups or user profiles. Texuna solution web-portals are developed using HTML5 technology, support responsive design templates and cascading style sheets. Solutions use the Wicket or Bootstrap Java web application framework. This supports a hierarchy of mark-up templates. Therefore, it is straightforward to make changes to mark-up templates and ensure consistent styling as and when needed, incorporating updates. The system also allows for the creation of case/project specific tags for application to records. These can be defined and controlled at a system administration level, or through specified user role/permissions as required. This will allow false negatives or fales positives to be highlighted and ignored in the application workflow logic. The analytics application, therefore, isn't a slave to the analytics results, and this flagging can be re-incorporated into new model versions during training and backtesting.	

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Teesside University		Learner Analytics	Student Interface – 4% *The solution must allow students to view their own performance and engagement data. *The student interface must be intuitive and easy to use. *Please provide an example of support documentation or resources provided to students to support their usage of the system. *The interface should allow students to compare their engagement and performance against a range of comparative values. *The interface may allow students to understand how their engagement is likely to impact on their achievement. *The display of data to students must be compliant with data protection regulations. *The student interface may integrate with the Collabco MyDay Student Portal. *The interface should be compatible with mobile devices, including iOS and Android.	Texuna will configure the solution to the exact needs of the Teesside University. The proposed solution is a very user-friendly system with an intuitive user interface. The system will be designed to industry best practices for user interface design. The solution will be designed collaboratively with our clients ensuring that there is a focus on usability at the frontend and not just implementing back-end functionality. Intuitive design is paramount to minimize help and training needs while ensuring the requirements are met. Simplicity and straightforwardness are key. We will reuse the University design standards and style (existing CSS) so that we comply with the University brand guidelines. We will prototype workflows in an agile way to ensure usability and content language is tested with end users with FAQ's to facilitate help and support. Our screens are coded using responsive web design principles to ensure that they are accessible and usable on any device type including mobile devices and laptops. In addition, the current range of popular browsers is supported. Texuna's solutions typically have very granular levels of security permissions that can be managed by security groups or at individual levels. These are applied to different analysis portals and can also be restricted by the content of different datasets. End users have differing needs, journeys and outcome goals. We match these with functionality and integrated services based on each student account profile. Profile data will drive business rules to give allow customization of access and features. These rules are configurable via an administrator web interface. Texuna solution includes a powerful Group access rule module, which allows for business rules to be defined. These rules permit users to access to groups based on any data maintained within proposed solution or sourced externally (i.e. based on a user's profile they may be permitted access to a group and hence an application/service). Again, a back-office user interface allows for these rules to be maintained independently of any system release, ensuring solution is adaptive to changing environments and needs. All aspects of the user interface and page-flows can be customised. Texuna are fully able to support brand identity, future changes and differing customised displays for particular user groups or user profiles. Texuna solution is developed using HTML5 technology, support responsive design templates and cascading style sheets. Solutions use the Wicket or Bootstrap Java web application framework. This supports a hierarchy of mark-up templates. Therefore, it is straightforward to make changes to mark-up templates and ensure consistent styling as and when needed, incorporating updates. Furthermore, it is a responsive framework (supporting both Android and iOS) allowing a Single Page Application design (compatible with Government Digital Service guidelines) to be put in place and modified independently of backend services which are accessed via API. This Single Page App approach also allows the student app to integrate via API to other sources including the Collabco MyDay portal.	
Teesside University		Learner Analytics	Reporting Capabilities – 6% *The solution must allow reports to be extracted on student achievement, performance and engagement at individual, module, course and School levels. *The solution must allow students defined as 'at risk' based on the data to be highlighted to staff. *The solution must allow reporting against discrete time periods. *The solution must allow the archiving of data to allow comparisons between cohort and individual performance between academic years. *The solution must allow comparative reporting of individual performance and engagement between different modules.	Texuna have worked with DfE bodies for +15 years to deliver data and reporting solutions to HE Sector, serving central government, HE/FE/Alternate providers and Schools. Each of our projects has stringent report requirements which have been met through predefined reports and flexible report generation to enable ad hoc reports to be created. Texuna will deliver comprehensive reporting on usage behaviour of the proposed solution. This includes standard dashboard reporting and flexible report generation capability so that all the management information requirements can be met. Our open standards and open policy also mean that we will permit read-only access to a schema-friendly database view so that authorised users can use traditional tools, or generate an API interface for computer to computer delivery of relevant management information. Some examples of what we have done for previous clients are presented below: Texuna delivered Jisc's Reporting Frameworks project which utilised data from Jisc, HE/FE Providers and other relevant external sources (e.g. HESA). As an open solutions provider, we integrated industry standard reporting tools, and particularly tools already familiar to Jisc staff so that they could generate their own custom and ad hoc reports on demand in addition to the dashboards and standard reports delivered in the project. Jisc use a reporting tool, Tableau, to generate management information, and we used this to deliver enterprise reporting and to pipe Member dashboards to their Drupal-based Members portal. For the National Student Student Survey by the Office for Students, a web-based analytics service is maintained by Texuna to allow university staff users to download and access their NSS results through a variety of means. This is done through Dashboards providing high-level visualizations of key metrics, static reports providing in-depth results of the Institutions and Sectors data through a variety of Excel-based reports. A Custom Reporting tool also allows users to build ad-hoc reports based on key metrics and KPI's they need, which is run in real-time against the reporting warehouse. Texuna's experience in data modeling and report creation will ensure that the information for student achievement, performance and other key metrics required will all be structured to allow for easy reporting and, for frequently needed metrics, dashboard presentation. The counting of the information can, in turn, be split by various categories as deemed necessary (e.g. by date/time period, by user type, etc). Should additional reporting be required going forward, data can be utilised through raw exports, visualization within the portal, use of simple tools such as Excel or integration with a standard reporting package. Advanced search and filtering features with export functionality will allow data to be taken offline for analysis on any tool including Excel if required. Automated exception reports can be established based on triggers to allow notifications to be sent out when pre-determined criteria are met.	

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Teesside University		Learner Analytics	Please describe how the supplier would work with the University to prepare the institution for initial implementation.	Texuna work collaboratively on an open book basis as an extension of the client team, building internal competence and capability. We use existing project and collaboration tools to minimize friction and maximize knowledge transfer or introduce alternatives if necessary. The key success factor for knowledge transfer is University staff involvement at every stage of the project: - During requirements definition, they participate in interviews and prioritization workshops - During the design stage, they contribute to modeling workshops - During the development and deployment stages, they provide feedback to the prototype demo sessions - On transition to Go-live, they participate in tests and training It is important to identify key users early and include them in the project team. They will act as the data stewards, subject matter experts, and must be willing to drive the transition to the new reporting framework. Through ongoing project communication, they will master the new reporting framework and will be able to take it over after the project is completed. In Jisc in 2016-2017 we worked onsite alongside Jisc staff, transferring skills, mentoring and coaching daily across multiple locations. Project sign off points ensured staff engaged in design and implementation. We introduced terms, methods and formal roles in Agile Scrum to the in-house team, and delivered upskilling sessions based on the methodology, architecture and technologies implemented. This included agreement on collaborative coding, the definition of done, and handover of source-code and cloud DevOps to a shared repository. Texuna acted as an extension of the in-house client team helping to build internal competence and capability.	
Teesside University		Learner Analytics	Please outline any activities within the solution which may limit access on a temporary basis when operational.	Texuna are accustomed to operating 24X7X365 solutions on the cloud. We do not anticipate any activities within the solution that will limit access on a temporary basis once operational. The only activity that would require planned downtime may be a complete system releases, and this can be scheduled to happen out of hours or at weekends. However such releases are not normal as data flow changes and minor application releases can happen without full system downtime.	
Teesside University		Learner Analytics	The solution must be able to authenticate users against Microsoft ADFS (if not ADFS, then similar solution that is capable of being supported by the University) and support single sign-on.	Texuna as a systems integrator spend a lot of time linking to the Microsoft stack, in particular with Active Directory to enable Single Sign-On for users on data warehouse and BI projects. Texuna confirms that the proposed application solution will support the following authentication methods which are in use by Texuna clients: * LDAP * Microsoft Active Directory * A local authentication method * Role-based access controls. In addition we support the following authentication protocols and standards * Single Sign-On (SAML2.0) * Shibboleth identity provider * OpenID Connect (OIDC) / OAuth2.0 * Fido UAF U2F CTAP / W3C WebAuthn Texuna is an experienced systems integrator. We have configured access and authentication controls with many existing client systems and can assure Teesside University that the solution will be compatible with their existing implementation.	
Teesside University		Learner Analytics	Please detail any and all further technical requirements to integrate with external systems (not covered in System Integration above).	The biggest obstacles to integration and project schedule are data quality, network connectivity, and data access. With the right working practices with the University gatekeepers and technical staff, a range of integration options can be considered, from direct database access to file imports to RestAPI access. Texuna has deep system integration experience and has worked with Pentaho Data Integration to provide the maximum flexibility and support for integrating with external systems of all sorts. In the unlikely event that a plugin is not already available for PDI, it has the extensibility to create custom plugins to deal with unexpected scenarios.	

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Teesside University		Learner Analytics	Please outline the licensing model adopted for the product, including any third party licence requirements.	Texuna is an independent, vendor-neutral system integrator, with expertise in both Linux and Windows-based software stacks. For the 4 month MVP pilot Texuna will deploy low-cost Linux-based services and then redeploy them on Teesside Azure account at the end of month 4. Teesside should note that if they want to use Microsoft SSAS as the warehouse database this will incur additional Microsoft license fees which are not covered by Texuna. Texuna by default provide an alternative open source columnar datastore such as Postgres, Greenplum or MonetDB. The MVP stack is outlined below, and will be migrated to Azure services for Institutional roll out: AWS: * AWS Redshift and AWS Postgres RDS services. * Amazon EC2 certified Red Hat Enterprise Linux. * Billing handled through Amazon EC2 Pay-as-you-go. * No proprietary AWS tech is used - this allows MVP to be redeployed to the Teeside Azure account. * Texuna's Infrastructure as Software uses Terraform and Ansible to configure automated cloud deployments. Pentaho Data Integration: * Orchestrate data flows for metadata framework deployment * Annual subscription license based on cores per server. * Texuna recommends the Standard, 4 core bundle server license. * The Production environment can be accompanied with cheaper evaluation licenses for development/test environments. * Pentaho typically license for 3 years Reporting/BI: * Teesside can reuse their existing Business Intelligence licenses such as SAP BO (or migrate same licenses to the cloud in future), or use a simpler alternative BI tool if desired.	
Teesside University		Learner Analytics	Please include details on how licencing costs would vary with number of users, network bandwidth used and disk storage required.	Licensing is covered as part of a monthly service fee typically cost per server per month. For a cloud-based service for up to 50 thousand users with enterprise-level support and SLA, this will start from approx £6,000 per month in total (this price is included as part of the monthly subscription service). Public cloud (AWS/Azure) licenses through a pay-as-you-go model by the hour with limited or no licenses required: * Red Hat certified and supported Enterprise Linux available with Premium Support includes Red Hat support and resolution for escalated issues. * AWS Redshift SaaS doesn't require any additional license, but pushing to SSAS on Azure will require a separate database license. * Public cloud supports the notion of Bring Your Own Licence (BYOL) - you can deploy your SAP BO servers on the cloud without any need to purchase new licenses if the old licenses are in good standing and up to date. Pentaho PDI: * Licencing costs and options vary widely for analysis/reporting, data science or Hadoop node packages. Texuna only use PDI with Standard license to run Texuna's metadata framework to minimize costs. * Pentaho term license paid up front for the minimum 3-year subscription * Texuna may finance a monthly payment subscription commitment subject to a 3-year contract * PDI runs on any generic Virtual Machine Instance * Dev and Test licenses for the same number of cores as Production license are included for free. No other licenses are required for the Texuna infrastructure as all mirror/staging/ODS/MasterData databases are based on Postgres.	
Teesside University		Learner Analytics	(In the case of cloud hosted solutions), please include details of system availability and performance guarantees and how these would be measured. Include specifics of the redress offered to the university should the guaranteed level of service not be achieved.	Texuna has provisioned the Solution on AWS so that it is available on a 24/7/365 basis, with a high availability percentage of 99.5%. Typically Texuna Solutions have an availability ratio that exceeds 99.5%. The system availability time does not include scheduled and approved downtime, e.g. for new releases. Any approved downtime will occur outside of the usual working hours, Texuna already operates a policy or releasing all systems "out-of-hours". University and users will be notified of planned downtime in advance and this can further be reviewed in project planning. In the unlikely event of the solution becoming unavailable outside of the plan named contacts at the University will be notified immediately while Texuna works to investigate and resolve the issue. A detailed report will follow. At such times, the highest priority at Texuna will be to recover the system and bring it back online. Automated system monitoring is set up by default through our Zabbix monitoring platform, and automatic alerts are sent out for unusual events or loss of service. Our service desk is BSI certified for ISO20000 with systems in place to implement an ITIL compliant helpdesk service. Our SLA for a priority one issue such as a system down is 4 hours. Texuna can offer service credits where service levels fall below the anticipated uptime.	

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Teesside University		Learner Analytics	Please provide detail on how consistent system recovery would be undertaken in the event of failure.	Texuna has already invested considerably on cloud platform scripts to bring a 'data–warehouse-in-a-box' solution with automated Business Continuity and Disaster Recovery (BCDR). Texuna implements a detailed BCDR plan which we test regularly. Backups of all applications are taken on a frequent basis and stored on site (for quick recovery) and offsite (in case of location disaster). This means that in the event of location failure, all systems can be accessed from the backed up location. Named staff members are in place at each location to take responsibility for all business continuity operations. Texuna is a provider of web-based systems and is therefore proud to have all our applications, resources (internal and project) on web-based, access control and backed-up systems. Regular automated monitoring is in place to ensure system stability and availability. In the event of an office disaster, web-based availability of resources allows Texuna to operate from alternative locations seamlessly.	
Teesside University		Learner Analytics	Please outline how new releases and upgrades are communicated and implemented with the minimum disruption to operations, and the support available to the University during this period.	As part of a cloud-based SaaS, much of the patching to the infrastructure services will be handled by the cloud provider. Texuna will provide maintenance releases for the data platform and analytics application on an ad hoc basis to resolve any identified bugs. This is in addition to periodic (usually annual) upgrades and enhancements to ensure that components are the most up to date. These releases are available for free as part of ongoing support. All maintenance releases will be delivered fully packaged and documented ready for installation. Texuna ask that the University verify all releases on Test environments prior to promotion to Production. If required Texuna can perform the releases remotely as an inclusive part of our Support service. Communication with impacted end users will be done according to an agreed plan with the University.	
Teesside University		Learner Analytics	Please confirm that new releases and upgrades can always be deferred to a date and time convenient to the University.	No releases will be made to production systems without the University approval. The solution periodically will deploy fixes + updates to the live system. These releases will be executed outside of business hours to minimize disruption. The University will be informed in advance of any planned system upgrades and a schedule agreed to make the necessary releases.	
Teesside University		Learner Analytics	Please outline the resourcing requirements for the University in maintaining the solution once implemented.	As part of a fully managed service, no resource is required from the University to maintain the solution once implemented.	

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Teesside University		Learner Analytics	Training & Support – 4% *Please describe the training provided to University staff to embed the solution and utilise it to its full potential, both during the pilot phase and wider implementation. *Please provide an example of user orientated support documentation. *Please provide details of the following support arrangements for the proposed solution: - Support provider (whether supplier or third party) - Helpdesk, including hours of service - Response time commitments - Location of support service - Fault reporting mechanism - Escalation thresholds and procedures - Remote diagnostic capabilities - Facilities for error logging and automatic escalation - Warranty period and support arrangements during this period - Service level agreements	Texuna provide both fully-managed services and also work with our clients to build and train them so that they are able to manage the services going forward. Texuna is able to offer training in any of the following formats: * Manuals and user guides - there is comprehensive documentation available to users of the Solution. * Videos for users who are new to the Solution or who want a refresher for infrequent tasks. * Webinar - Texuna can offer remote webinars as a training option which is useful particularly if attendees are geographically spread. These can also be recorded for future reference and playback. * Face-to-face training for larger user groups in geographically strategic locations to maximize participation. Training for Support staff and University policy staff will be carried out on-site. Two sessions are planned before going live and will be treated as Train-the-trainer style sessions. End-to-end process training including linking, messaging, searching, and analytical processes from the frontend and on reporting for administration, business, and Student users. We have the necessary skills and experience to ensure that a complete knowledge transfer is accomplished to equip University staff with the knowledge they need to update the learner analytics model and operate the solution. Texuna is able to provide comprehensive training sessions supported by full documentation and test case scenarios. All documentation will be customised to the University needs as in-house skills available to differ by University. Technical documentation * System management and maintenance processes are all fully documented which facilitates staff training and handover; * Documentation includes at a minimum: o Environment and server/services configuration, o Release deployment scripts and procedures o Maintenance and monitoring procedures, o Backup and Disaster Recovery, and o Encryption and certificate requirements. o YAML documentation for any APIs that have been created. Certain technical documentation is available from our partner companies such as Pentaho, and any bespoke project work will be documented by Texuna and delivered as part of an overall project engagement. User guides Texuna is able to offer service and support help and guidance in any of the following documentation formats: * User guides - basic overview of the application. * Videos for users who are new to the Solution or who want a refresher for infrequent tasks. * Searchable FAQ's and help text easily accessible to users from within app screens Texuna can provide helpdesk services according to ITIL v3 best practices. Our helpdesk is certified to the ISO 20000-1 standard (Service Management). Texuna provides professional services from London and from Cork in Ireland with engineering and testing support offshore. Texuna have approx 15 staff available to provide on-site support for UK projects, with an additional 20 staff for remote support. Our support services are usually negotiated on a project by project basis so that we can deliver a service that our customers want. Texuna typically provide email, phone and chat support during normal business hours (09:00 - 17:00, Monday - Friday, excluding public holidays. Extended hours can be provided at extra cost. Service Levels & Service Reports Our documentation on GCloud itemises different possible service packages for Premium and Basic level service. All queries received are recorded on our CRM ticketing system are issued an identifier used to record, track and follow queries from receipt through to resolution. Where there are technical issues with the system availability or functionality, these are raised with and managed by the Texuna service desk. Raised incidents can only be closed after senior and authorised members of staff have reviewed the issue, any possible impact and corrective/preventive actions associated have been identified and addressed satisfactorily. Texuna has nominated Standards Officers in each office whose role is to ensure that our standards processes are operating effectively. They are also responsible for management reporting to our CEO who strongly advocates our standards processes. Tickets are escalated to the officers, tracked using an identifying number so that bi-directional communication is maintained and streamlined. All service queries for each project are responded in accordance within each project own agreed SLA's. Current SLAs in place are: *Initial response to P1 1 working hour *Initial response to P2 4 working hours *Initial response to P3 8 working hours *P1 fault resolution 4 working hours *P2 fault resolution 1 business day We are able to monitor and manage the queries received so that the service level is met and can provide reports on activity as needed.	

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OBU		IAM	Criteria 1: Whole-life cost Basing your response on examples of previous implementations, please provide an indicative price for the call-off contract to deliver and support the solution as broken down in the pricing matrix. Please indicate if there are additional costs for any new developments/integrations that the University may require in future years.	Texuna are delighted to provide this highly competitive indicative costing proposal to Oxford Brookes University based on the following: 1. The technical design and understanding of the project requirements given within this tender proposal. 2. The experience that Texuna have built up throughout the many years of successfully implementing an Identity and Access Management (IAM) Solutions. 3. To assist Oxford Brookes University with budget requirements, and simplicity, Texuna are basing all personnel driven cost assumptions on the basis of blended daily rate of 650 GBP (exclusive of VAT) for all full time employees (FTE). Texuna have over 15 years experience implementing complex solutions in the education sector, and with a huge focus on Identity and Access Management. We can provide Oxford Brookes University with a very proficient team, that are driven to deliver leading edge solutions. Texuna are more than happy to further discuss the contents of the Texuna proposal face to face with Oxford Brookes University to ensure that a clear and transparent understanding is obtained and the most appropriate approach is set in place Oxford Brookes University, and in collaboration with Texuna to successfully deliver the Identity and Access Management (IAM) Hybrid Solution. Subscription (Licensing) Cost Texuna are pleased to offer a rate of 1,000 GBP (exclusive of VAT) per month per node to cover all users and expected volumes. Based on previous experience, we would expect Oxford Brookes University to use 3 nodes in production and 1 in Development and 1 in Test. Therefore, we would advise to budget for 5 notes in total. This price includes the following: All ongoing operational support and maintenance personnel costs including level 2 and level 3 support. Texuna assume that Oxford Brookes University will handle all level 1 support. All requirements that have been identified by Oxford Brookes University eg: identity lifecycle, password, SSO/MFA, RBAC. Costs for test, development and production systems. Please note any support personnel required is charged separately and at the blended daily rate of 650 GBP (exclusive of VAT) for all FTE. Please note that any ad hoc project support for scope change is charged at the blended daily rate of 650 GBP (exclusive of VAT) for all FTE. Indicative Costs for Consultancy and Implementation Support Texuna are pleased to offer a blended daily rate of 650 GBP (exclusive of VAT) for all FTE. The exact price can only be determined when the final project scope is available. But based on previous experience we would advise to budget for approximately 100,000 -150,000 GBP (exclusive of VAT) should be expected to ensure all integrations, data flows and customisations are properly achieved within a 6 month timebox. Additional Costs U2F and/or other similar MFA support is included in service, but the hardware devices are not included and will need to be provisioned by Oxford Brookes University if required. If required, Texuna are more than happy to assist Oxford Brookes University with this task.	

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OBU		IAM	Criteria 4: Non-functional characteristics (Experience) What is your experience of working with hydrid based IAM solution products and providers? Please provide details of your recommended solution'.	Texuna specifies, designs and delivers intelligent information integration, data management and single sign-on identity management systems. Texuna has been highly successful in delivering services and support to large public sector projects each requiring sophisticated user and identity management for large numbers of users. Texuna uses its own component-based platforms to develop solutions and services that meet the specific needs of our clients. This provides a standardised approach, minimising software maintenance and bringing control, speed and stability to the configuration and implementation process. The platforms are highly adaptive; embodying the seventeen years of experience we have in providing successful IT projects. This includes integrating with enterprise IAM systems while rolling out hybrid enterprise and cloud data warehousing solutions. We have developed a highly successful Identity, Authentication and Access Management system based on open SAML and LDAP protocols that authenticate and authorize users and provides the gateway controlling access to 40 separate systems. This is known as Texuna Identity and Access Management (Texuna IAM) and it successfully serves completely different groups of users, integrating and synchronizing data from a variety of sources. Texuna IAM will form the platform on which the Oxford Brooks University Solution will be configured. Some of Texuna IAM's most notable implementations include the national Single Sign-On Secure Access project for the Department for Education (DfE SA), the GIAS (formerly EduBase) national schools database and three large projects at the National College for Teaching and Leadership (NCTL) now part of the DfE. The underlying technology and capability of our solutions are proven. The Oxford Brookes University requirements can be met by the Texuna IAM authentication solution, which can be shown to be robust, scalable and secure. The Texuna IAM Single Sign-On 'Secure Access' solution is the DfE's integrated Identity and Access Management Solution. It serves all schools and various stakeholders in the UK, which also includes local authorities. Identity management, integration and synchronization within this Texuna IAM solution alone includes 11 services each of which has differing capabilities for access and identification. These solutions are supplied by various vendors using various technologies. Data synchronization methods utilised are also varied and include bulk imports via nightly web-services, transactional updates pushed/pulled via synchronising web-services, and the use of SAML assertions synchronizing data on the fly with access requests. This integrated system was rolled out to all users as a greenfield project, and has proven extremely successful, now witnessing over 300,000 successful logins a month and has potential support for over a million users. The same architecture and core solution is proposed for the Oxford Brookes University solution, and it is also worth noting that a throughput of 90,000 logins per hour is currently supported. Texuna has worked extensively within the public sector and can demonstrate that it has: • Proven experience of deploying its technology in public sector systems which utilizes web technology, databases, integration and reporting in a highly secure environment; • the required project management structures in place to manage high visibility and Gateway approved projects; • the expertise to deliver functionally complex and yet user-friendly web-based solutions which adhere to the government's e-GIF, RNIB (See it Right standard) and WAI (up to AAA) usability standards; • the ability to perform a rapid knowledge transfer with new organizations to quickly understand their business, objectives and requirements; and • the ability to coordinate, integrate and present complex data collected from hundreds of different organizations in different formats and approaches through a single uniform interface. Texuna is a gold standard provider that values long-term relationships with our clients to meet and exceed their evolving expectations. We deliver innovative, high-quality solutions and to this end we have achieved the following standards certifications: • ISO 27001 for Information Security; • ISO 20000 for Service management; • ISO 9001 for Quality Management; • ISO 14001 for Environmental Assurance; • IASME Cyber Essentials Certification • Prince2 / MSP accreditation for all our project managers; • Sun and Brainbench certified development staff. • Registered as a data controller with the Data Protection Commissioner • AWS and HitatchiVantara (Pentaho) certified partner	
OBU		IAM	Criteria 2: Technical merit and functional fit Please provide examples of how your recommended IAM solution(s) can get data from source databases and files, provision users to on-premises applications, custom applications, or cloud applications not pre-integrated with the solution.	https://docs.google.com/document/d/1dKcdOEAnDQ4JL2yrmuEfar98IKAo_I1WG2sNx1IBe3U/edit for editable diagrams - see: https://drive.google.com/open?id=0B-7ffG4scWYnVnNsRkNISWEzRm8	

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Intro				*Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.*	
OBU		IAM	Criteria 2: Technical merit and functional fit Please provide details of how you would deliver the requirement to manage the identity lifecycle for external resources who supplement the University workforce directly in the IAM solution.	Texuna understand the requirement for the University to manage access from different user types using business rules that control the extent/timespan of their permissions as well as controlling the access and authentication to various University systems that may be integrated. Fundamentally we propose to use the administrative structures that are already set up within Texuna IAM to administer access rights for temporary staff and external resources. This will mean that the administration and control of access to University systems will be streamlined. Texuna IAM defines a number of different roles within the Texuna IAM itself that are separate from the specific access groups and permissions that are defined to control differential access to the connected system and control Single Sign-On. Roles within the Texuna IAM define, for example, administrators and 'normal' users so that either permissions or behaviour can be managed by the application. Texuna propose that at least one, and most likely several, different role types will be configured to categorize the types of temporary and external users that the University wishes to cater for. These roles will be identified more closely during our early discussions and specification work so that the needs of the University are correctly reflected. Each role type will be associated with a set of customizable business rules that may control elements such as: * the time period after initial setup that the user account is valid for and after which it will be automatically archived - this would enable e.g. 6-month contract staff to be managed centrally * the selection of third-party systems that the user may be granted access to, e.g. if there are some University systems to which external users are never granted access like the finance systems * any exclusions that may apply, for example, some email types may be prohibited. Fundamentally, role-based business rules may be constructed to ensure accurate management of external and temporary staff by a whole range of different criteria. These criteria may be specific to the way that Oxford Brooks University conducts its business. The configuration will enable the Texuna IAM to operate according to University policy. Users that are set up within the Texuna IAM are assigned into groups to manage their access rights to the linked third-party systems. Access groups configurations enable specific and fine control over user permissions in the source systems; what systems may be accessed and what access rights are granted.	
OBU		IAM	Criteria 2: Technical merit and functional fit How does your recommended IAM solution(s) provide secure and manageable password self-service?	Identity authentication Once a user has registered and the account profile populated with data, user identity authentication can be achieved via the following processes: * Pin/Question-based password reset mechanism (often used for initial registration) * Username and password (knowledge factor authentication) * Self-service forgot password and forgot username processes (which can be configured for a user-specific security question) * Answer a security question; * Manual helpdesk reset password and remind username processes (if user has forgotten answer to security question) Texuna IAM's customizable platform also allows bespoke processes to be created based on business process components. Existing components support the following functions: * Change password; * Change security question and answer; * Verify account information (for example, name, email, telephone, etc); Texuna IAM's customizable platform also allows bespoke processes to be created based on business process components; however, this is not expected at this time. For example, components exist for the following functions: * Change password; * Answer a security question; * Change security question and answer; * Verify account information (for example, name, email, telephone, etc); Texuna's approach is to manage the majority of profile data within Texuna IAM. We anticipate that the majority of data will initially be imported via data feeds, and maintained via web services as necessary. Some data is expected to be managed via back office systems. This data can be synchronised by daily automated tasks, or requests can be made on the fly as required. Texuna have years of experience of data integration, including both web-services and scripted tasks utilizing SFTP and differing data formats. The preferred means are: * Synchronisation via SAML messaging with authentication and access requests. * Synchronisation via web-services (SOAP/RESTful), which are either scheduled tasks or on the fly as needed. During the initial consultation and analysis phase, the identified requirements for matching data from the various sources will be defined.	

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OBU		IAM	Criteria 2: Technical merit and functional fit How does your recommended IAM solution(s) enable or improve web-based Single Sign-On from the University's current system and fulfil the requirements included in this RFI?	Texuna IAM has Single Sign-On (SSO) capability that enables users to login once and be authenticated to all services they have been granted access to. A user can authenticate once and reuse that authentication for various services within a session. The functionality, and user experience, has proven highly effective within large existing Texuna IAM solutions delivered to the public sector. Third party applications can also enforce additional login requirements before user access system to ensure the user's session is linked to the actual user (i.e. user logs into Texuna IAM, session is active. User then accesses third party site, they are prompted to re-authenticate - the session does not follow them). This is useful for highly secure third party sites.

Outside of a session, Texuna IAM's flexibility allows for various levels of integration to be achieved with legacy or existing systems. Web-services are employed to exchange data ensuring that master data ownership can be retained or authentication processes enacted with appropriate systems.

Texuna IAM acts as the master for some information, synchronising records with appropriate systems (if required) through web-services. Similarly, other systems may be classed as the master for some types of records or areas of information such as extended user profile attributes, and Texuna IAM can pull this information as required. This information can:
* Be pulled as needed to support authentication processes.
* Be stored and synchronised within Texuna IAM to support authentication processes.
In both scenarios, previous authentication processes, from previous sessions, can be retained meaning the provided authentication details can be reusable if needed.

Integration options and choices have been outlined in question 2 above. Texuna IAM provides a high level of flexibility in the methods and options available for integration so that the University source systems can be integrated fully and to the best capability of the system.

In addition to options for integration and therefore the standards supported, Texuna IAM provides a high degree of flexibility for users and for management of user accounts, with full auditability and exception tracking to support a positive user experience.

The Single Sign On service is provided through the Shibboleth libraries which will make for a seamless migration of this functionality to the new solution platform, and will help decouple and isolate the new IAM service from inhouse Active Directory services so that customised identity lifecycles and user journeys can be put in place more easily. It is possible to authenticate directly on the Texuna IAM or alternatively snippets of code can be reused on existing platforms or websites to redirect authentication requests to the new solution seamlessly. It also means that custom approaches to self service can be introduced, with different workflow implemented for different types of user groups. | |
| OBU | | IAM | Criteria 2: Technical merit and functional fit How does your recommended IAM solution(s) enable MFA? | Texuna IAM is based on best of breed open source software components and support MFA and SSO in a flexible way.

- MFA via One Time Passcode - 3rd party OTP generators can be used to provide once-off codes. This has been done successfully with Google Authenticator app as well as with SMS code distribution via text message to mobile phone.

- U2F / Fido2.0 (UAF / CTAP / WebAuthn) - modern web browsers now support the FIDO2.0 open standards for MFA or passwordless authentication based on the possession of a physical key. FIDO does away with the necessity of shared secrets and implements a PKI based approach with encrypted challenge and response mechanism. It also provides protection against tracking of user web traffic by instilling the use of different key pairs for each service so that user behaviour cannot be tracked online across services. It also greatly reduces the impact of any problems associated with breached security at the IAM and/or any integrated Service Provider. This approach is particularly useful for step-up authentication for Privileged roles. | |

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OBU		IAM	Criteria 2: Technical merit and functional fit How does your recommended IAM solution(s) monitor, track, delegate or revoke access?	**Logout/Timeout processes** Texuna IAM allows users to log out from connected applications/services and Texuna IAM itself. Texuna IAM confirms to the user via messages displayed on Texuna IAM when logout is successful, or if the user has timed out instead. Users see different messages depending on whether they've logged out or timed out of the application, and whether their Texuna IAM session is active or inactive. The timeout period can be configured. NB: A user may only have one active session, i.e. if a user has an active session and uses another browser or PC to login to their account, their original session will terminate. If they attempt to access Texuna IAM or a connected application from their original browser they will see a warning message to explain they have logged in elsewhere. This is for security reasons to discourage sharing of login details. **Delegate access** Texuna IAM controls what systems a user can/cannot access through the use of various groups. A group is linked to a specific linked application and is used by the linked application to provide user access to certain elements of that system. Depending on the size of the linked application there may be a large number of groups dedicated to an application, with users being entitled to hold access to 1 or more groups for that application. The IAM solution uses a series of Group Access Rules (GARs) to decide which users are entitled to access a particular group. These rules can be broad (e.g. all active users are entitled to access), they can be based on multiple pieces of information (e.g. they must have a specific role in the IAM solution, they must be linked to certain organizations and so on) or they can be specific to individual users (e.g. the user must be one of a list of 10 users to be granted access). Provided a user's account meets the requirements of the GAR they can then be granted access to the application group in question, this action must be taken by an admin/approver before the user in question will be able to access the linked application. **Revoke access** All users will be displayed in the admin portal with the list of applications they can access (shown as groups they are members of). Admin users and approvers can, at any time, add to this list (provided the user meets the requirements of the GARs, see above) or remove the user from any groups. Removing a user from the group will result in that user no longer being able to access the application in question. **User changes address or other profile information** Texuna IAM can control the authorization of users when accessing connected Applications/Services. Texuna IAM does this by assigning users to groups (i.e. roles). Each group equates to a set of permissions or a role in an Application. Users belonging to this group will have access to said function within the Application. Groups can have sub-groups created – these represent a more granular level function within an Application/Service. These groups and therefore applications/services access are controlled by the 'Group access rules' functionality. These business rules define the users who can have groups and the application available to their account. The rules can be based on any user/organization/group attributes, such as address or other profile information. If a user changes address or other profile information that results in the breaking of identity authentication rules, the group is no longer available on their account and access is removed. These Group Access rules may be managed via the Texuna IAM user interface, by a system administrator, without the need for a system release or supplier involvement. Furthermore, business rules and validation can be configured within Texuna IAM to manage data changes. For instance, if the Group Access rules cannot facilitate complex validation or rules, custom business rules and workflow can be configured within the IAM solution. This operates in a similar nature, removing access from groups and therefore applications/services based on data changes or conditions. **Audit** Texuna IAM includes a sophisticated audit capability so that all user activity is recorded in the audit trail. The IAM supports: * Full audit trails and versioning on all profile and Texuna IAM configuration records. * Full audit trails on user actions and access, including failed attempts. Authorised staff, as configured by the University, are able to view the audit records via the back office administration.	

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OBU		IAM	Criteria 2: Technical merit and functional fit Please provide details of how data is managed and secured within your recommended solution and also to/from output resource and input data sources.	Texuna IAM takes a best practice approach to securing data. No shared secrets are directly stored, but are salted and hashed on the browser before sending to the IdP server for authentication. All traffic is encrypted in transit, and is also encrypted at rest. Furthermore, a minimum set of authentication data is cached for maximum performance and exposed to the external internet. Other components of the service including SSO and provisioning services are hidden behind a non-public facing virtual private network with a closely controlled firewall. Trusted connections are put in place between the IAM and trusted Service Provider systems and integrated sources behind the firewall within the trusted VPN. Texuna know that sensitive personal data must not travel outside EEA even in encrypted form. Texuna IAM use encryption whereever feasible. Texuna IAM automatically applies encryption to data at rest to: * BLOB/Object Storage Services (data buckets used for import of feeds). * Postgres Database. * IAM, with transparent data encryption controls applied to confidential data. Access to encrypted data is closely controlled through: * Encryption keys for ciphering are stored separately from application databases to mitigate risks. Data in Transit uses: * Industry standard SSL between an authenticated web browser using the HTTPS protocol (Transport Layer Security - TLS1.2). * A combination of algorithms to lock keys with ciphers: SHA 256 bit (SHA-2), RSA 4096 bits key, AES256-SHA384. * Further data encryption in transit through public cloud hosting for all IaaS, PaaS and SaaS services. * IPsec (AES-256, SHA-256) from inhouse through Virtual Private Cloud or Virtual Private Network. Texuna implement a strategy of minimal attack surface. All application resources are secured by firewall and only minimally required ports are open. Security rules define ranges of IP address that may initiate connections on specific ports. Texuna IAM utilizes AWS functionality that improves data security • Built-in firewalls that configure private networks within AWS, and control network access instances and subnets • Encryption in transit with TLS across all services • Connectivity options that enable private, or dedicated, connections from offices or on-premises environment • DDoS mitigation technologies as part of auto-scaling or content delivery strategy	
OBU		IAM	Criteria 2: Technical merit and functional fit How does your recommended IAM solution/service provide High Availability (HA) and Disaster Recovery (DR)? Please provide details of your Recovery Point Objective (RPO) and Recovery Time Objective (RTO).	High Availability Texuna propose Amazon Web Services (AWS) as the cloud hosting solution for the IAM solution services. AWS is the most feature-rich cloud service and offers guaranteed redundancy, fault tolerance, scalability and high availability; The world-class AWS facilities are within the EU jurisdiction and we propose the solution is hosted at the London Region. Locally accessible expertise together with guaranteed redundancy, fault tolerance, scalability and high availability make the AWS IaaS offering ideal for the OBU project. Meaning OBU teams can concentrate on end users, meeting IAM requirements and return on investment - not an infrastructure jigsaw and support nightmare. By collocating the IAM workloads, within the context of a ring-fenced Virtual Private Network within the AWS London region, we can eliminate bandwidth and latency issues between all the key components in the overall architecture. Disaster Recovery Separate AWS EC2 instances will be set up and images captured and stored for backup and disaster recovery purposes - as an OBU-specific Amazon Machine Image. These will be used to keep the reporting infrastructure costs low - i.e. online backup images can be used to restore failing services within minutes without having to debug problems. This means we can shift the focus of the service from a highly available cluster in return for a simple automated kill and restore service. A pair of service nodes will provide load balancing in Production and automatic failover in case of any loss of service with 1 node thereby assuring high availability in a read-only mode in any event. Recovery Point Objective Texuna's approach will separate a read-only internet exposed clustered service run on a cache from a read-write backend that has low loads. This means that each part of the service can operate independently in event of a failure and provides assurance that RPO is either not relevant, or if the backend node drops, then a full recovery should be possible without loss of service or loss of data (since write operations to persistent storage will be temporarily halted). Recovery Time Objective Texuna cloud hosting ensures that the IAM will be configured to be launched and killed instantly either through a UI or automatically in case of loss of service, as well as new cluster nodes added in real time through the UI to give almost linear scalability.	

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OBU		IAM	Criteria 2: Technical merit and functional fit The University is expecting to replace the current LDAP as part of the project. Please provide information on your recommended replacement or solution.	The Texuna IAM is a suitable alternative to the current LDAP as it incorporates the OpenLDAP libraries for integration as well as alternative modern alternatives for advanced features. The solution was designed to deal with the problem of integrating a large array of heterogeneous methods of provisioning and controlling user access and mimicking Single Sign-On. Today the support of various open standards greatly simplifies the challenge and makes it easy to create a centralised service for authentication and for patrolling Role-Based Access Control. This includes the use of Shibboleth for Single Sign-On. As Texuna IAM stores all information about user identities and permissions in own identity storage and does not depend on a specific LDAP installation, it provides a set of options to choose from. First, it can integrate with a legacy on-premises LDAP server which can be useful for a step-by-step migration process from current IdM system to the new IAM solution. TexunaIAM uses a set of client LDAP libraries and able to propagate user data to/from any LDAP server and can be adapted to existing LDAP infrastructure. Secondly, in order to improve the maintenance efficiency and reduce likely network timings, new the IAM solution can include the replacement LDAP component that can be installed in the same cloud with other components of the new IAM solution. For AWS-based cloud deployments it is based on Amazon Cloud Directory and AWS Directory Service which is a reliable and high-performance solution placed in a well-secured environment tightly connected with other IAM components thus making interactions within the IAM system almost instantaneous and robust. Thirdly, a strategy for a complete replacement of LDAP can be considered, but it's largely dependent on current legacy LDAP usage specifics and integrations with client systems.	
OBU		IAM	Criteria 2: Technical merit and functional fit. What do you consider are your biggest challenges in providing the current Waveset IdM functionality. How would you resolve them?	1. Integration with many heterogeneous systems for sourcing and provisioning Multiple integration points always create a serious challenge for a new system. In order to create a quality replacement we will study the existing environment and document each integration point if documentation does not exist. Then we attempt to re-create production environment in a separate place for developing and testing. At least one as similar as possible environment replica is required for pre-production deployments. Additional environments would be needed for development but they can be managed using mocking/emulation software. Aggressive testing of the new components will be performed to ensure their consistency with the specification in order to minimize production deployment problems. Still, in complex integration cases production environment with real external systems is still the ultimate challenge and inconsistencies most likely would only be found on this stage. To address such issues we would have a comprehensive and easy to implement plan and tools to rollback changes, monitor and debug the problem, switch off and on elements of the new system. Connectivity to existing systems is managed through using ConnId (Connectors for Identity Management) written in Java and is a successor to connector bundle libraries used by Waveset. This theoretically makes us able to reuse some parts of existing customised connectors working in current environment. 2. Minimizing processing time for reading/provisioning The Waveset replacement needs to perform reading and provisioning work in the most efficient and quick manner. The new system would have to deal with slow network connections and periods of downtime in the external systems. The number of updates coming from the source system can be quite large at times. All such problems must not degrade the provisioning engine efficiency. To address these challenges, the engine uses various pooling, loose-coupling, queuing, multithreading techniques, and can use cloud-based queue service in AWS deployment (SQS). The replacement service will be developed as a stateless application which can be scaled up in the cloud to withstand the periods of high load. 3. Making provisioning workflows flexible and configurable The replacement engine used for reading and provisioning will have a Workflow layer based on BPMN 2.0 implementation and can be customised by using another engine in a pluggable manner, for example, Flowable BPM. A custom flexible implementation can be defined. Workflow engine is accompanied with Workflow UI modeler allowing web-based graphical modeling of the workflow definition.	

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OBU		IAM	Criteria 4: Non-functional characteristics. Please propose an indicative plan for completing this work. The current IdM is out of support in December 2019.	An initial Project plan is presented below. This has been put together based on Texuna's past experience of very similar projects and the detailed information provided in the RFI documentation. Texuna do not foresee any issues with delivery as per the stated go-live date prior to December 2019. Note we need a project plan - need the estimations first prior to this being created Texuna manage projects using Prince2 methodology and employ an agile development approach to the configuration and commissioning of deployed solutions. These tools and techniques, together with our focus on transparency and our partnership approach with our clients, have enabled us to successfully deliver on time and budget. Texuna's existing authentication platform is already available and in use in a number of projects. Minimal configuration changes are needed to bring this product in line with expectations. Texuna will, therefore, approach this particular project as a series of 5 sub-projects/phases as highlighted below: 1. A detailed consultation/analysis phase will be conducted soon after the contract award to get more accurate estimations for each of these phases and for the particular configurations needed by Oxford Brookes University. These will be fed into the initial Project plan to ensure the plan is as detailed as possible. This phase will also ensure that sufficient resources have been assigned. If there is a need for additional resources to be assigned, Texuna can easily do this from its available pool of highly skilled staff. 2. Build and testing phases (product configuration and deployment): These work packages will involve making configuration changes to our existing authentication platform (called Texuna IAM). Texuna IAM will be configured to exactly meet the needs of Oxford Brookes University by introducing (or updating existing) validations, rules, standards, protocol versions and deploying a 'fit for purpose' product on an initial Development/test environment. The Development/Text environment will be fully designed and configured during the infrastructure and environment setup period. Each system to be integrated will be treated as a work package (though some work may be common and will therefore overlap). This task will involve getting user data structures from existing application suppliers, ensuring the appropriate integration protocols are correctly enabled and configured in both systems. Testing will also be conducted for each work package to ensure an optimal solution is delivered to Oxford Brookes University.	

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OBU		IAM	Criteria 4: Non-functional characteristics – Experience Please provide details of up to two contracts, in any combination, preferably from the Higher Education sector, otherwise from the public or private sector, voluntary, charity or social enterprise (VCSE) that are relevant to our requirements. The named contact provided should be able to provide written evidence to confirm the accuracy of the information provided by you Please Provide: *Name of customer organisation *Point of contact in organisation, position, telephone number and email address *Description of contract (please note you may submit a supplementary appendix or case study if required) *Start and end date of contract	Contract 1 *Name of customer organisation: Department for Education *Point of contact in organisation: Mark Richardson - Service Delivery Manager Email: mark.richardson@education.gov.uk Tel: +44 (0) 1142742166 *Description of contract: Secure Access Texuna specifies, designs and delivers intelligent information integration, data management and single sign-on identity management systems. Texuna has been highly successful in delivering services and support to large public sector projects each requiring sophisticated user and identity management for large numbers of users. Texuna uses its own component-based platforms to develop solutions and services that meet the specific needs of our clients. This provides a standardised approach, minimising software maintenance and bringing control, speed and stability to the configuration and implementation process. The platforms are highly adaptive; embodying the fourteen years of experience we have in providing successful IT projects. We have developed a highly successful authentication module, based on SAML and LDAP protocols that authenticates and authorises users and provides the gateway controlling access to 40 separate systems. This is known as Texuna IAM (Texuna Identity and Access Management) and it successfully serves completely differing groups of users, integrating and synchronising data from a variety of sources. Some of Texuna IAM's most notable implementations include the national Single Sign-On Secure Access project for the Department for Education, the EduBase national schools database and three large projects at the National College for Teaching and Leadership (NCTL). The underlying technology and capability of our solutions are proven and are demonstrably robust, scalable and secure. The Texuna IAM Single Sign-On 'Secure Access' solution is the DfE's integrated Identity and Access Management Solution. It serves all schools and various stakeholders in the UK, which also includes local authorities. Identity management, integration and synchronisation within this Texuna IAM solution alone includes 11 services. All from various vendors using various technologies. Data synchronisation methods utilised are also varied and include bulk imports via nightly web-services, transactional updates pushed/pulled via synchronising web-services, and the use of SAML assertions synchronising data on the fly with access requests. This integrated system was rolled-out to all users as a green field project, and has proven extremely successful, now witnessing over 300,000 successful logins a month and has potential support for over a million users and a throughput of 90,000 logins per hour is currently supported. Problem statement: The analysis, specification, design, configuration and customisation, testing, delivery, rollout and ongoing support of a Single Sign-On Identity and Access Management (IAM) to replace several legacy systems Identity and Access Management services. Providing improved user experience; increased productivity; better value for money; better service; better control of access to services; greater usability and greater security. The solution also needed to easily support future unknown services and data integrations as they arose. Solution: Texuna IAM has been configured deployed and integrated with a number of legacy DfE systems. A large amount of user data from disparate sources were cleansed and imported. This data are now maintained and synchronised through various integration methods. At go live, five services were integrated; the number of distinct services has now more than doubled. The project includes third level service desk support, with hosting and maintenance originally carried out by the DfE's preferred supplier and in more recent times transferred to AWS public cloud. *Start and end date of contract: November 2014 - December 2018 Contract 2 *Name of customer organisation: Department for Education *Point of contact in organisation: Andy Sansom - Operational Support Unit Team Leader +44 (0) 7392 136 023 andy.sansom@education.gov.uk *Description of contract: Summary The GIAS (EduBase 2) solution was limited in that it had been developed in 2008. As such, it was showing its age from a UI/UX perspective, and user feedback from key Departmental users was that it wasn't the easiest to use. The DfE recognised that they did require a solution that offered them the functionality of GIAS, but equally recognised that the solution as it stood was not meeting their key users' needs. The GIAS solution maintained its data through the concept of data owners and approvers. This meant that a large volume of changes could be processed with the decision making element being devolved to key decision makers within the DfE. It was handled in an ad-hoc manner, with updates being notified via email as and when the changes occurred. The GIAS project also needed a refresh to fall within the Government Digital Services (GDS) framework, so the existing approaches needed an overhaul to meet the needs of the GDS approach. Migration to SA was performed to an exacting timeframe and was successfully delivered. It was a high profile project for the Department as the single sign on for establishments operating across all major Departmental databases gave significant benefits to all users. *Start and end date of contract: Initially 2008 - 2012 then retendered and rewon 2012 - 2017. Re-awarded again in 2017 - 2019. More detail descriptions of the contracts you can find in Appendix 1 - Case studies: https://docs.google.com/document/d/1IG-zNX3rLcw8kf_Ic8t4UWTFWXLf5tVaPOkcZ0GJUHE/edit#heading=h.yuyuloyrm5tm	

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OBU		IAM	Criteria 4: Non-functional characteristics. The University is aiming to improve Privileged Access Management (PAM). Is your recommended solution able to provide support PAM or are you able to recommend a PAM solution? If so, please provide details and indicative costs.	Texuna IAM solution PAM module makes it harder for attackers to penetrate a network and obtain privileged account access. PAM adds protection to privileged groups that control access across resources. It also adds more monitoring, more visibility, and more fine-grained controls. This allows OBU to see who their privileged administrators are and what access permissions they have. PAM module OBU more insight into how administrative accounts are used in the environment. Texuna IAM PAM module helps OBU: See which users are assigned privileged roles to manage resources, as well as which users are assigned administrative roles Enable on-demand, "just in time" administrative access to resources See a history of administrator activation Get alerts about changes in administrator assignments Require approval to activate privileged admin roles Review membership of administrative roles Texuna IIAM-PAM module provides convenient access to activate roles, view pending activations/requests and approvals. User may submit request through online form or REST API. Approval workflow is customizable through built-in BNPM 2.0 engine. Once approved user is added to designated elevated permissions group with specified retention policy, elevated permissions are provisioned to external system or systems based on elevated permissions group configuration. Texuna IAM-PAM module removes user from elevated permissions group according to retention policy and de-provision access to external systems. Texnua IAM/PAM module is part of the solution and does not required additional costs.	
University College London		IAM	Please give an overview of your company or organisation including its foundation, history and current size, values and ethos and product offering.	Founded in London in 2000, the company has continually focused on data solutions and has forged a reputation as a delivery partner for Gold Standard IT services in the public sector. Since then, we have worked with numerous major clients across the UK and Ireland in public sector, regulatory environments as well as private and commercial clients. Our primary area of expertise is identity, privacy, data collection, governance, warehousing and data lakes with deep expertise in big data tools, open source software and agile delivery. We work with data and support normalised schemas, Data Vault 2.0 approach and Kimball star schemas. As a vendor-neutral solutions integrator, we continually search for the "best of breed" for our clients. We provide the best value for money, "achieving more for less" with a dedicated solution precisely tailored to their needs, very often leveraging open source components and libraries. Our history shows our commitment to data and innovation while ensuring solutions are low risk, fit for purpose and reuse existing tools and expertise. Texuna is a top choice for organisations looking to put users and their data at the heart of their digital transformation. Texuna Identity Assurance and Access Management (IAM) is an enterprise-class Identity Management (IdM) solution supporting mission-critical authentication and authorisation services for private and public cloud applications. Texuna Identity Assurance and Access Management also enables organisations to quickly and easily implement a secure Single Sign-On (SSO) experience for employees, customers, partners and contacts. Texuna's IAM can be deployed on in-house, third-party or Texuna-provided hosting services. In all cases, web-based access to the administration component is provided, enabling the import of data (e.g. users and organisations), the connection of existing public or private cloud-based applications and the management of user access. Texuna IAM is effectively an electronic Identity as a Service (eIDaaS) that you can use to integrate and consolidate your in-house and cloud application presence for stakeholders and customers alike. Built using open source technologies, IAM has been packaged by Texuna into a secure, robust and scalable (clustered) enterprise-level application, using industry standard protocols and open standards such as SAML via Shibboleth, OpenLDAP, Active Directory, OAuth, SCIM and SPML. Texuna's IAM is a cloud agnostic service, operable within a public, private or hybrid cloud environment that can scale to tens of millions of users. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can therefore act as a secure message integration hub between integrated systems. Our Identity and Access Management product is on G Cloud-10 at: https://www.digitalmarketplace.service.gov.uk/g-cloud/services/163886945559541.	

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University College London		IAM	Please give an indication of your current customer base and the types of activities/needs/objectives that they use your platform to support.	Texuna has +15 years delivering HE data and reporting solutions to the UK Education Sector. We serve central government, Higher Education / Further Education / Alternative providers and Schools, as well as MOOCs like Alison.com (12+ million learners). We helped JISC in Bristol to integrate 3 distinct business units following a series of mergers by introducing an Enterprise Data Warehouse with columnar data storage and processing for fast BI. This involved working with 130+ data feeds from dozens of sources and over 3 thousand existing reports. We significantly improved performance of report generation introduced historical data reporting and removed technical issues that blocked the creation of complex reports in the past. We also eliminated timeout throttling on legacy reports against transaction systems. We achieved this by creating a data warehouse pipeline from the in-house network to the cloud, and migrating SAP BO infrastructure to the cloud. We also integrated the cloud with the in-house Active Directory server to simplify management and deliver Single Sign-On. Texuna are currently implementing separate EDW for Oxford Brookes University and for London Metropolitan University, working with about a dozen different systems, several of which are based on the Microsoft stack. Texuna analysts are reverse engineering the SAP BI Suite ETL package in OBU to re-implement the same logic through our metadata framework, allowing the benefits of warehouse automation to be realised. We are also working on a number of projects with University College, Cork including a Student Placement Application. For the Department for Education - Texuna have deployed several different solutions to the Azure cloud including legacy systems. In some cases these were Microsoft stacks and in other cases open source stacks. On the GIAS project we use the Azure stack extensively to provide high uptime performance for the service. Other customers include: * Dell EMC (data integration and analytics) * Office for Students (National Student Survey) * Ofsted (fostering data collection) * Department of Finance (Ireland - eDiscovery and eDisclosure) * Edukit.org.uk (schools data collection) * STA Itembank to manage SATS exam papers * National College of Teaching and Learning (now within DfE - Initial Teacher Training Data Management System)	
University College London		IAM	Identity as a service	Texuna deal with Identity lifecycle management but also access management through groups and permissions features, and data exchange between trusted service providers. We also integrate emerging technology standards such as OIDC, U2F, Fido2.0/WebAuthn to maximise support for strong authentication. We combine this with our experience and expertise around data cleansing and integration to create a single record for every person that uses the IAM. We believe there is an opportunity within the university space to create life long relationships from prospective applicants through to Alumni in industry and in retirement, and this can only be done with good quality data, personalization and a clear integrated view of the individual. We provide these as fully managed services through a cloud-based offering with full automation for business continuity and disaster recovery. Because individuals data is sensitive and privacy is a primary concern of ours, we focus on Identity as a Service as it allows us to grow and share our technical excellence across multiple clients within the education context. Communication of sensitive data is assured via secure SAML assertions, SOAP and RESTful based web-services are utilised and secured via certificate exchange. Traffic between the link endpoints (Texuna IAM and an Application Web Service) is encrypted as part of the communication sessions established before messages are transferred. SSL support alongside other protocols (e.g. Transport Layer Security v1 and above). We also work with legacy systems and create bespoke integrations where required to work with existing LDAP based applications and create the necessary custom schema mappings between services so that the right permissions and roles are allocated to the right user groups that simplify provisioning and lifecycle maintenance.	

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University College London		IAM	Identity services	Texuna IAM has Single Sign-On (SSO) capability that enables users to log in once and be authenticated to all services they have been granted access to. A user can authenticate once and reuse that authentication for various services within a session. The functionality and user experience has proven highly effective within large existing Texuna IAM solutions delivered to the public sector. Third-party applications can also enforce additional login requirements before user access system to ensure the user's session is linked to the actual user (i.e. user logs into Texuna IAM, session is active. User then accesses third party site, they are prompted to re-authenticate - the session does not follow them). This is useful for highly secure third party sites. Outside of a session, Texuna IAM's flexibility allows for various levels of integration to be achieved with legacy or existing systems. Web-services are employed to exchange attribute data ensuring that master data ownership can be retained where it best belongs, or authentication processes enacted with appropriate systems. Therefore Texuna supports open standards such as OAuth, SAML and OIDC to maximize flexibility. Texuna IAM acts as the master for some information, synchronizing records with appropriate systems (if required) through web-services. Similarly, other systems may be classed as the master for some types of records or areas of information such as extended user profile attributes, and Texuna IAM can pull this information as required. This information can: * Be pulled as needed to support authentication processes. * Be stored and synchronised within Texuna IAM to support authentication processes. In both scenarios, previous authentication processes, from previous sessions, can be retained meaning the provided authentication details can be reusable if needed. Texuna IAM provides a high level of flexibility in the methods and options available for integration so that the University source systems can be integrated fully and to the best capability of the system. In addition to options for integration and therefore the standards supported, Texuna IAM provides a high degree of flexibility for users and for management of user accounts, with full auditability and exception tracking to support a positive user experience. The Single Sign-On service is provided through the Shibboleth libraries which will make for seamless migration of this functionality to a new solution platform and will help decouple and isolate the new IAM service from in-house Active Directory services so that customised identity lifecycles and user journeys can be put in place more easily. It is possible to authenticate directly on the Texuna IAM or alternatively, snippets of code can be reused on existing platforms or websites to redirect authentication requests to the new solution seamlessly. It also means that custom approaches to self-service can be introduced, with different workflow implemented for different types of user groups.	
University College London		IAM	Access services	The Texuna IAM is a suitable alternative to the current LDAP. We incorporate OpenLDAP for directory services and Midpoint libraries for integration and provisioning of user data. We can also support modern alternatives for advanced features. The solution was designed to deal with the problem of integrating a large array of heterogeneous methods of provisioning and controlling user access and mimicking Single Sign-On. We provide a sophisticated, flexible database schema with mapping tools to allow granular permissions and user roles from a variety of 3rd party systems and legacy solutions to be mapped to our IAM service, leveraging User Groups, Account Types and User Organisations to facilitate sophisticated business rules to orchestrate and access data and application services across the lifecycle of provisioning and de-provisioning. Today the support of various open standards greatly simplifies the challenge and makes it easy to create a centralised service for authentication with authorization for patrolling Role-Based Access Control. This includes the use of Shibboleth for Single Sign-On. Texuna's IAM fully supports granular Role Based Access Control while allowing business rules and permissions mapping to simplify access management across a large enterprise portfolio of cloud, in-house and proprietary systems and legacy applications.	
University College London		IAM	Service consumers	Texuna's data integration and cleansing experience with data warehousing gives us a unique perspective on creating and integrated identity warehouse from which standard approaches to provisioning and identity management can be created. We centralise the schema mapping necessary from a wide portfolio of different legacy LDAP directory services, creating a single place to create governance processes across the application estate. By leveraging Midpoint open source libraries and connectors we can quickly provide access to a range of systems and applications, and integrate them with best practices in IAM authentication and access management. As indicated above earlier, Texuna IAM has Single Sign-On (SSO) capability that enables users to log in once and be authenticated to all services they have been granted access to. A user can authenticate once and reuse that authentication for various services within a session. The functionality and user experience has proven highly effective within large existing Texuna IAM solutions delivered to the public sector. Third-party applications can also enforce additional login requirements before user access system to ensure the user's session is linked to the actual user (i.e. user logs into Texuna IAM, session is active. User then accesses third party site, they are prompted to re-authenticate - the session does not follow them). This is useful for highly secure third party sites.	

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University College London		IAM	Identity and access applications	Texuna's proposed solution includes alternative access control methods so that the University has a high degree of control both over the access method as well as the granularity of the permissions structure. This provides the ability to control user groups separately from what permissions they have to see and do things. This is often impossible to achieve in existing IAS tools. Central University services should have updated procedures to control onboarding and offboarding of all joining/leaving users, including a review of the Access Matrix so access is revoked when users, contractors or employees leave the University. The following authentication methods are available: * LDAP * Microsoft Active Directory * Local authentication methods when required * Role-based controls * Single sign-on (SAML) * Shibboleth identity provider * Two-factor authentication (including U2F and Fido2.0 / WebAuthn) Ultimately local authentication methods should not be managed independently but controlled centrally through one of the alternative authentication methods as listed above - these are easily configured to provide a Single Sign-On experience.	
University College London		IAM	Identity access model	User permissions are entirely role-based and are configured using security groups dedicated to different roles. Users are placed in groups to allow access rights to be maintained at a Group level, rather than on an individual user basis. Groups may also contain other Sub-Groups, enabling access rights to be inherited from a parent group. One group may grant access to the whole site while another group may limit access to only some content within the site. Texuna IAM has no restrictions on the number of groups or the number of users assigned to a group. Groups can be created managed and maintained via a back-office user interface, negating the need for system or supplier updates as new roles and groups arise. Texuna IAM includes a powerful Group access rule module, which allows for business rules to be defined. These rules permit users access to groups based on any data maintained within Texuna IAM or sourced externally (i.e. based on a user's profile they may be permitted access to a group and hence an application/service). Again, a back office user interface allows for these rules to be maintained independently of any system release, ensuring Texuna IAM is adaptive to changing environments and needs. Groups and roles can be created in Texuna IAM, but the mechanism for authorization based on assigned groups and roles may vary depending on the connection in place between the Texuna IAM and the particular application/service.	
University College London		IAM	Identity data (model)	Recognising the value of an individual user from prospective applications to alumni, from student to researcher and by employment is a fundamental driver of future improvement of staff, academic and student experiences at any university. The identity data model needs to shift to centre-stage. By default, Texuna puts the identity front and centre. We respect the user and their data, ensuring Privacy by Design - based on defaults like 'nothing-accessible and everything-auditable'. This makes Privacy Impact Assessment easier, facilitating security by design for GDPR compliance. Security and audit strategies are centred around data and user access. Restrictions are only lifted based on actual requirements. Master data version is kept where it belongs at source or at the IAM and shared only when needed and only for as long as needed during a user session. We configure restrictions with the following principles: * avoid highly bespoke permissions on low-level row by row granularity (simplicity facilitates better management) * encrypt or hash sensitive data if privacy is required on a widely distributed dataset * separate the management of user mapping to groups from the management of group permissions * integrate with all appropriate enterprise Identity & Access Management (IAM) e.g. Active Directory * secure private data through restricted database views accessible to BI tools. A multilevel Audit trail follows these principles: * Accountability for all updates/changes/additions, with viewable/searchable logs. * All data operations can be independently audited. * Logs concerning traffic with all systems streamed to independently secured, tamper-resistant locations. * Logs subject to independent monitoring/analysis.	
University College London		IAM	Access flexibility model	As Texuna IAM stores all information about user identities and permissions in own identity storage and does not depend on a specific LDAP installation, it provides a set of options to choose from. First, it can integrate with a legacy on-premises LDAP server which can be useful for a step-by-step migration process from current IdM system to the new IAM solution. TexunaIAM uses a set of client LDAP libraries and able to propagate user data to/from any LDAP server and can be adapted to existing LDAP infrastructure. Secondly, in order to improve the maintenance efficiency and reduce likely network timings, the new IAM solution can include the replacement LDAP component that can be installed in the same cloud with other components of the new IAM solution. For AWS-based cloud deployments, it is based on Amazon Cloud Directory and AWS Directory Service which is a reliable and high-performance solution placed in a well-secured environment tightly connected with other IAM components thus making interactions within the IAM system almost instantaneous and robust. Thirdly, a strategy for a complete replacement of LDAP can be considered, but it's largely dependent on current legacy LDAP usage specifics and integrations with client systems. A short discovery period is required to properly understand requirements.	

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University College London		IAM	Please describe any other opportunities and capabilities not covered above that you think UCL should consider.	It is commonly recognised now that systems that are password-based (even if properly hashed and salted on the client side with the most recent algorithms as you might come to expect), centrally stored secrets are inherently weak and subject to attack. Single Sign-On at the very least is required to simplify end-user behaviours and secure their everyday practices. However, this has the effect of further concentrating a single point of failure. Strong password policies often encourage counterproductive behaviours and need to be well thought out. Many solutions in the hacking arms race have promoted a growing sophistication and complexity of behavioural and biometric options (multi-factor authentication, or MFA) that are more frictionless in use than rigorous approaches such as 2-factor authentication (2FA) (who you are, what you know, something you have). Unfortunately, MFA and 2FA are misused, and even Google's Authenticator cannot truly be called 2FA. Therefore, following the successful state-sponsored hacking of Chinese dissidents abroad who relied on Google Authenticator 2FA, Google themselves now internally promote the use of PKI based U2F / FIDO2.0 physical devices to secure access with passwordless authentication. In the medium to long term an IAM has to be cognisant of the coming impact of self-sovereign identity, blockchain and the move away from shared secrets (passwords) toward Fido2.0 / WebAuthn (which can be integrated with student and staff access cards). Biometrics and behavioural monitoring are currently on trend, but as the evidence from Cambridge Analytica demonstrates, inappropriate capture, use and analysis of private data could constitute privacy violations that the student population and liberty of academic staff could easily challenge and rebuke. Open standards, publicly accessible networks (including Eduroam), Bring your own Device and Bring your own ID are more likely to win the support of students and academic staff. And above all, the use of Open Source software and open standards, as well as clear policies and guidance on what behaviours are monitored and how, on what data is stored and options to review and remove such data, will quickly come to be expected as a minimum by students and academics in a post-GDPR world.	
University College London		IAM	UCL would like to understand how you have managed implementation of a previous IAM solution. Please provide a high level description of the approach you would suggest to UCL from your experience?	When working with Universities, Texuna recommend the following approach: * Short Discovery phase: 4-8 weeks - to ensure user personas and their outcomes are at the centre of the design, and the scope of work is well defined * Review of available skills, resources and artefacts available within the University and a gap analysis to identify required skills and effort to deliver the project * Agree a backlog of work based on a Priority Matrix outlining quick wins, strategic priorities and other work to be delivered over time * Agile 2-week work sprints grouped into Rolling Wave timeboxes of approx 8 weeks to deliver each major piece of work or Epic Texuna expect that 8-week timeboxes are sufficient for IAM rolling wave deliverables, during which the key major systems can be onboarded for any one group of users (i.e. either the Student body, employee user group, or the faculty academic staff group). Therefore these 3 groups could be delivered over a 24 week period following the Discovery phase and Prioritisation Matrix.	
University College London		IAM	Briefly explain what skills will be required at UCL to support and grow the solution implementation?	Texuna expects collaboration with University "knowledge holders" through business analysis. Texuna will review and analyse the business requirements and prepare the Delivery roadmap. Texuna will help the University IT team both to understand the required solution and also to conduct support and maintenance of solution and infrastructure. A Skillsets matrix: Business analyst: Understanding of University data protection rules, access permissions policies and user management process as-is. Understanding of current user registries and data structure. Solution administrator: Understanding of University data protection rules, access permissions policies. Texuna will train solution administrators as part of project delivery. System administrator: Understanding of cloud hosting principles, experience with Azure or AWS is a bonus. Resource will be allocated to delivery streams ensuring that at least one member of Texuna and University staff of the same role participate in delivery. Texuna staff will work hands-on with University team in loco collaboration in order to integrate the teams toward a common outcome.	
University College London		IAM	In what ways might your company assist with our implementation strategy (including definition of role-based access groups), roadmap, testing and evaluation of proposed solutions?	Texuna will staff and support University in implementing its Identity Access Management solution wholly with full-time permanent Texuna staff for the project duration and beyond. The project will be managed from the Texuna London office and led by the most experienced staff, who have already successfully delivered similar Identity Access Management solutions. This multi-disciplinary and highly experienced team represents over 50 years of combined experience on similar projects with formative knowledge of the public and Higher Education sector. It is expected that this team will be based both at Texuna offices and collocated at University working in an agile collaboration. Texuna manages projects using Prince2 methodology and employing an agile delivery approach to the configuration and commissioning of deployed solutions. These tools and techniques, together with our focus on transparency and our partnership approach with our clients, have enabled us to successfully deliver on time and budget. Texuna's agile methodology promotes a modus operandi to deliver frequent incremental releases. This engages customer early on and offers the flexibility to amend and change the detailed functions supported as the business requirements develop over time. Texuna's existing authentication platform is already available and in use in a number of projects. Current functionality on this platform is very similar to the University's requirements. Only minimal configuration changes are needed to bring this product in line with expectations. A detailed consultation/analysis phase will be conducted soon after the contract award to get more accurate estimations for subsequent implementation phases. These will be fed into an initial Project plan to ensure the plan is as detailed as possible, with outcomes for a phase delivered through two-week sprints. This phase will also ensure that sufficient resources have been assigned. If there is a need for additional resources to be assigned, Texuna can easily do this from its available pool of highly skilled staff.	

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University College London		IAM	Please provide any case studies explaining how you have assisted organisations such as UCL in this area previously.	Our best experience is evidenced through the following: * Developed the DfE Identity and Access Management solution for the schools sector (Secure Access). The Texuna IAM product is the gateway interface to 10 legacy services at the Department and Texuna has worked successfully with the suppliers of these services to ensure the success of the integration work. Secure Access provides a high availability Single Sign-On solution to these systems. This has significantly improved ease-of-use, streamlined service and enforced rigorous access control to the legacy services. Standards supported are: Shibboleth, OpenIDConnect, SAML2 and LDAP with both SOAP and RESTful web services. OAUTH2.0 compliance and U2F / FIDO2.0 support are under active development. Secure Access has passed stringent third-party penetration tests and has been in live use since 2012, originally with 3 services and now extended to 10 services. * More recently Texuna worked with Jisc to roll out a cloud-based enterprise data warehouse and BI solution with support for a member portal. All the infrastructure was integrated with the in-house Jisc Active Directory to facilitate Single Sign-On to relevant cloud services. Since that time, Texuna have won tenders to supply data warehouse services to several universities in Oxford and London with the same identity single sign-on approach to link cloud services and in-house services. Details available upon request and subject to their permission. * Texuna IAM is in use with the Standards and Testing Agency (STA) which controls access for all users via U2F to the sensitive schools SATS papers on the ItemBank system. * The original IAM was built to support Zamin Resources Limited and their network of global offices to experience a single sign-on experience across a range of LDAP-based and cloud-based services and remains in continuous use within Texuna for 10+ years. Since this time the product has been developed extensively.	
University College London		IAM	Please could you supply UCL with an indication of the average timescales involved in the transition from contract go live to platform go live.	Texuna would expect the University to plan for up to 6 weeks from Contract signature to complete a Discovery phase of work, followed by up to 3 timeboxes of 8 weeks each being 24 weeks in total post-Discovery. Each timebox can be subject to different gateway reviews with User Acceptance Testing before production system releases.	
University College London		IAM	Please could you explain your purchase/licensing/pricing model(s)	Texuna are committed to a partnership approach, and a long term fully managed service so we can provide the highest level of expertise to the university. We are also committed to open standards and approaches, and the portability of solutions so that they can transition between different cloud providers and in-house infrastructure to eliminate any vendor lock-in. Typical costs might be as follows: One-off transition costs: typical budgets might be in the order of £10-20 thousand per integrated system. Licensing is covered as part of a monthly service fee typically cost per server per month. On a cloud-based service for 50 thousand users with enterprise-level support and SLA, this will start from approx £5,000 per month in total. Hardware and infrastructure costs are included in the monthly fee. However, there is a separate charge for physical devices to support U2F or FIDO2.0. These are typically less than £20 per device for small volumes. Large discounts are available for 50 thousand devices. Charges are invoiced monthly in advance. Payment terms are 30 days with a purchase order or immediate via credit card.	
University College London		IAM	Please describe any product support models you provide and the costs associated with them.	Texuna charge per node in a clustered server stack, as well as a service management fee for a fully managed service. These are standard, fixed fees.	

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OBU		IAM	Criteria 1: Whole-life cost Please provide a clarification on the costs per user, costs for specific functional requirements, implementation costs and (based on previous years) projected annual subscription costs for the next 4 years. Please indicate if there are additional costs for any new developments/integrations that the University may require in future years.	Texuna are delighted to provide a highly competitive indicative costing proposal to Oxford Brookes University based on the following: 1. The technical design and understanding of the project requirements given within this tender proposal. 2. The experience that Texuna have built up throughout the many years of successfully implementing an Identity and Access Management (IAM) Solutions. 3. To assist Oxford Brookes University with budget requirements, and simplicity, Texuna are basing all personnel driven cost assumptions on the basis of blended daily rate of 650 GBP (exclusive of VAT) for all full time employees (FTE). Texuna have over 15 years experience implementing complex solutions in the education sector, and with a huge focus on Identity and Access Management. We can provide Oxford Brookes University with a very proficient team that are driven to deliver leading edge solutions. Texuna are more than happy to further discuss the contents of the Texuna proposal face to face with Oxford Brookes University to ensure that a clear and transparent understanding is obtained and the most appropriate approach is set in place Oxford Brookes University, and in collaboration with Texuna to successfully deliver the Identity and Access Management (IAM) Hybrid Solution. Project Build Cost 150K is the 1-off project cost. That includes all stages of the proposed project work. If OBU decide to only go with A & B options then this would attract a cost of 100K for 150 days worth of effort. Subscription (Licensing) Cost OBU Managed Service Texuna are pleased to offer a rate of 1,000 GBP (exclusive of VAT) per month per node to cover all users and expected volumes. Based on previous experience, we would expect Oxford Brookes University to use 3 nodes in production and 1 in Development and 1 in Test. Therefore, we would advise to budget for 5 notes in total. This price includes the following: • All ongoing operational support and maintenance personnel costs including level 2 and level 3 support. Texuna assume that Oxford Brookes University will handle all level 1 support. • All requirements that have been identified by Oxford Brookes University eg: identity lifecycle, password, SSO/MFA, RBAC. • Costs for test, development and production systems. Please note any support personnel required is charged separately and at the blended daily rate of 650 GBP (exclusive of VAT) for all FTE. The cost for the monthly Software as a Service is identical for all quotes - and is not cumulative i.e. it is same price in all cases (except additional nodes may be added if performance sizing requires it. Texuna are more than happy to offer a fully managed service also. This would attract a cost of 2,500 GBP (exclusive of VAT) per month. Irrespective of how many nodes are in use. Texuna will be responsible for 24/7 365 uptime, patching, maintenance and dealing with security incidents. Please note that any ad hoc project support for scope change is charged at the blended daily rate of 650 GBP (exclusive of VAT) for all FTE. Additional Costs U2F and/or other similar MFA support is included in service, but the hardware devices are not included and will need to be provisioned by Oxford Brookes University if required. If required, Texuna are more than happy to assist Oxford Brookes University with this task.	
OBU		IAM	Must be able to trigger identity changes from database event tables and lookups in 'real' time, i.e. there should only be a 'short' period of time between an event in the source database and IAM processing that event.	The provisioning service has a generic database connector which can be customised to read data from database table of any structure. The agent constantly monitors the source table (configurable, with units of time in seconds) for any data changes and then reads all deltas into the provisioning service 'shadow' representation for analysis (any entity, property changes will be monitored). A customised mapping algorithm supports the validation of any changes identified before modifying and committing the change into the IAM's permanent record. Following the 'read' sync, the 'provisioning' commences whereby the applied changes initiate provisioning into all configured outbound resources. Each resource can have own provisioning policy and according to it change can be applied, delayed or not applied to each specific outbound resource. Each outbound resource is handled separately, with specific connector and dedicated pool of configurable workers that allow provisioning change tasks to be parallelised. A highly efficient and customisable design allows quick automated synchronisation between multiple sources and multiple destinations, while maintaining the current correct state of each particular user account within the IAM.	
OBU		IAM	Must be able to trigger identity change from flat files (i.e. the system should detect any changes in those files).	As with any database table approach described above, the provisioning service can similarly read data from flat files thanks to a specific flat file connector. We constantly monitoring the flat file for any field changes and, once detected, the content of a file is parsed and stored in the IAM 'shadow' for analysis by the provisioning service. Records are continuously monitored, triggering update events on each detected record change in the same way that database deltas are processed. The well-developed Connector Framework allows the provisioning service to read data from various sources beyond databases and flat files in a non-intrusive manner. This means there is no need to install monitoring agents on any external systems.	

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	Sector	Solution	Question	Template Response	Picture number
OBU		IAM	Must by default, for staff and students, provision Google (with defined attributes), LDAP and AD (with home directories, disk quotes and auto added to various AD groups) resource accounts a configurable and potentially different amount of time before their official start date.	Our provisioning component uses the Connector Framework for various external systems and protocols. Out-of-the-box connectors are available for synchronising to Google, LDAP and ActiveDirectory and can be customised for any specific use case if so desired. The connectors are written in Java which therefore also gives us the ability to use/reuse existing customised connectors of the replaced Waveset system if required. All connectors are configured within same framework architecture - this permits adding/removing/changing the amount and nature of the outbound resources without changing the IAM synchronisation and business logic.

Each outbound provisioned external system (Google Apps Users, ACS-AD, CIS-AD, LDAP installation, CoreHR, Banner SRS etc.) is handled separately by the provisioning service. For each external system, a separated pool of workers and separate 'shadow' user record is maintained. All provisioning activity is performed within separate threads and each thread is excuted in parallel. Nevertheless, an additional logic can be customised for particular needs: for example, user record is automatically synced into ACS-AD as soon as possible, but not to CIS-AD (only by special approval by the system admin). Also for each outbound resource additional rules can be configured (e.g. delayed provisioning by X days, different periods of active time etc.). User records will have main active period (start and end date), and the provisioning service would provision/deprovision the account accordingly; but for each provisioned resource the active period can be customised individually, and the provisioning algorithm will respect it. | |
| OBU | | IAM | Must provision (and release) LDAP unique (i.e. no clashes with existing identities, but can be reused after the identity has been deleted) UID attributes for staff and students. | To allow for UID reuse, the provisioner will need to clean up such UID attribute within the LDAP records and mark it inactive/archived in own database when a staff/student record is de-provisioned. The workflow and connectors are sufficiently flexible and allow configurable create/update/cleanup of any custom attributes/properties of entities. | |
| OBU | | IAM | Must generate unique LDAP attribute for staff (must remain the same if the identity is deleted then at a later date re-provisioned, i.e. it should be stored externally, e.g. a separate database). | The solution can generate own unique UID values according to any required algorithm and can ensure that it hasn't been already used. This unique value will then be stored in solution's own database 'shadow' representation and provisioned to the external systems. When an account is flagged as deleted, the record is actually not physically removed from the provisioner database - and hence can be used for logic checks including allowing it to be re-used again with same account in case the account is re-activated for example.

Texuna IAM comes with own identity storage based within a relational database structure. This persistent identity storage acts as the sources for 'how accounts should be represented in all integrated systems' at any given moment, and additionally as an archive of those accounts and the changes made to them. So while some records might be completely removed from outbound resouces during de-provisioning, all historic information about them can be preserved within the Texuna IAM identity warehouse database (or for example can be removed or encrypted etc for sensitive information, - subject to configuration). | |
| OBU | | IAM | For provisioning staff, soon after configuring their email account, must send an introductory html email and write back to CoreHR a couple of attributes. | While all provisioned external systems are treated by our provisioning service separately, it's possible to logically set a dependency rule between any given set of them. For example, provisioning to CoreHR can be configured to be done only after successful provisioning of the record into LDAP and only where a valid user email is available in the current identity record. It's also possible to configure a flag to allow provisioning to certain resources based on the current state of the user record. Such logic can be as sophisticated as is required without becoming a problem for the provisioning robot since the current state of all records in all external systems is separately stored within our 'shadow' tables.

The system will also be configured to send the necessary HTML notifications via email or text via SMS subject to configured criteria. Therefore only once a user is given an email address will the system then send the required introductory email to this address, for example. | |
| OBU | | IAM | On demand, must create separate AD domain accounts (i.e. CIS-AD) for staff. | Our Provisioning Service has its own API and UI which can be used to edit user records manually and initiate their provisioning/update/de-provisioning in external systems. On demand, a user can be added by a system admin into a special group (or set with a special flag) marking access to CIS-AD. The algorithm will then automatically provision this change into CIS-AD (and de-provision it when access is revoked manually or automatically). Provisioning logic can be configured per each external resource and such logic can seriously differ. It's not a problem to have CIS-AD as a special case managed only on-demand. The record would be de-provisioned from CIS-AD if/when a user is generally deactivated - the system can enforce that a user cannot be active within any given resource after it has been deactivated: IAM will have full control over the identity lifecycle. | |
| OBU | | IAM | On demand, must add additional AD 'admin' type account to identities. Note: there has just been a request to add a similar LDAP 'admin' (not actually admin for LDAP but required to administer a separate system that uses Shibboleth/LDAP authentication) type accounts. So the general ability to add secondary and in theory more resource accounts of the same type to an identity would be very useful. There should be the option to enter an automatic de-provisioning date for these 'admin' type accounts and if not, they must be automatically deleted when the identities accounts are deleted. | Texuna already support such requirements using customisable embedded concept of 'intent' (account type) wherein additional usage characteristics are explicitly declared for each given user. By default, each user has a 'default' intent, but it's possible to add custom intents which would lead to creation of a different user account (s) targeted for special use - "admin", "testing" and so on. These accounts won't be entirely separate and therefore don't lead to the creation of separate user records within IAM system itself (i.e. no duplication of user accounts can be enforced).

Intents are almost entirely custom. It is expected that such Intents will be pre-defined specifically for each use case, and these can change over time as new systems are onboarded and offboarded. | |
| OBU | | IAM | Must be able to suspend various user accounts depending on 'flags' in the source data for each identity. | This requirement is perfectly configurable. When source data is read into internal identity store, it's analysed and then any decision can be made based on record's state and mapping of activation rules. Additional flag(s) can be added and even managed within the provisioning service's UI component. | |

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OBU		IAM	As part of the de-provisioning process, must send alert emails to users notifying them before each account is disabled. Also, potentially email line managers for staff accounts (tbc).	Texuna IAM provides a mechanism to notify the user about relevant changes in itself or connected resources. The system can be configured so user/line manager/admin who requested operation etc. can be notified via email when user's account is created, modified or removed, or password changed, or when user has another work item to process. System supports following basic notifications: - User notifications (related to user record, e.g. its creation, modification or removal) - Resource object notifications (related to objects on resources, e.g. creation, modification, or removal of accounts, groups, etc.) - Workflow notifications (generated when a work item is created or completed, or when a workflow process instance is started or finished) - Task notifications (when a task is started or finished) - Custom notifications	
OBU		IAM	As part of the de-provisioning process, for each identity's resource account, must allow for different configurable extension periods before each is first disabled then later deleted. e.g. it is likely that the student's AD account will be deleted before their LDAP or Google accounts. (Note: the University does not currently delete Google accounts, accounts are disabled. However it is likely the University will delete Google accounts in the future).	Each outbound provisioned external system (Google Apps Users, ACS-AD, CIS-AD, LDAP installation, CoreHR, Banner SRS etc.) is handled separately by the provisioning service. For each, a separate pool of workers and separate 'shadow' representation of a user record is maintained. Thanks to that, de-provisioning activity can be performed separately for each resource according to customised rules. User accounts can be closed in a multi-step process based on User account state (e.g. scheduled-to-close, closed, disabled, archived, etc). Each such step can revoke access to one system but leave record in another system present/active for some time. De-provisioning of an account can be configured to be just as sophisticated as the creation/provisioning process.	
OBU		IAM	As part of the de-provisioning process for students, must be able to set an LDAP attribute after a predefined time (before it is disabled). Note: This is used to stop students access various SAML protected resource soon after they leave but allow them to use other LDAP/SAML protected resources for longer.	A scheduled task can be created to monitor user accounts within the system and apply specific changes (like setting LDAP attribute) to a user record at specific times. Such change would lead to sync activity with external systems and set a LDAP attribute during complex de-provisioning process based on pre-defined mapping rules.	
OBU		IAM	As part of the de-provisioning of Google accounts, must be able to change the account's OU (note Google accounts are currently disabled, not deleted. However it is likely the University will delete Google accounts in the future).	Not a problem to change user's Organisational Unit if it already exists and Google allows that. Texuna will provide a customised de-provisioning algorithm of the required complexity and our Connector will perform any feasible action the external system will permit.	
OBU		IAM	Must enable In-house configuration and development.	Texuna IAM is highly configurable solution with extended capabilities for additional development. Texuna IAM provides UI for in-house configuration for integrations with external systems and provisioning rules. For example password policies configuration UI is flexible and easy to use. Texuna IAM provides a powerful and customisable processing behaviour/workflow for different types of users, including account suspensions. Once a user record passes eligibilty checks, then the provisioning component will synchronise/provision the account into the required external systems (in case of update, the provisioning service can additionally deprovision the given user record from other systems the user was removed from - all based on configurable provisioning workflow rules). Texuna IAM can be hosted in OBU's AWS cloud allowing OBU system administration team to maintain and apply additional customisation to system environment. Advanced and flexible REST API provides capabilites for extension development.	
OBU		IAM	Must allow users to change their IAM password, if they know their current password. This should by default automatically 'sync' to their other accounts (e.g. Google, LDAP, AD, but NOT any associated 'admin' type accounts).	Synchronizing user properties (including password) between various systems is the main task of the provisioning service. This behaviour is very flexible and configurable: the account state for all users is stored within Texuna IAM identity warehouse and constantly monitored for changes and checked according to special rules/triggers. When a user password changes (irrespective of who initiated the change) a change event is logged and propagated to the sync managers of each external resource. The workers perform sync in parallel, to each resources separately and do it according to configured rules. Texuna IAM provides API and web-based UI for user self-service, using which user can change password, recover account, create account (if new), and can be configred to do other actions if required.	

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OBU		IAM	Via GUI must allow identity resource accounts to be disabled in the case if reports of compromised accounts are received.	Users with the required special permissions can login into Texuna IAM and perform manual changes to user accounts, including their temporary or permanent disabling. When an admin sets a user account status to 'Locked', this initiates a change event which is processed automatically by the pool of workers of every external resource thereby resulting in de-provisioning (or deactivation) depending on configuration. In this way a compromised account can be manually disabled triggering a deprovisioning almost immediately. Also, the account can be manually re-instated just as easily by the admin user. Given that all account properties are stored independently within the Texuna IAM identity warehouse, returning a user account status to 'Active' will automatically trigger the external systems re-provisioned just as quickly. Also, it's possible to disable/enable account on each particular external service separately, without deactivating accounts in all systems. It's possible thanks to Texuna IAM's provisioning service treating all external resources separately and providing a 'shadow' of resource state within our own identity warehouse. It's also worth noting that potential changes coming from source systems will not affect accounts/resources that have been disabled forcefully.	
OBU		IAM	If workflows or parts of workflows fail, they must automatically retry a number of times but if they continue to fail, emails are sent to the relevant teams. It is expected these events will feed into Brookes' SIEM product (tbd).	The external resources and internal data is constantly monitored by worker process threads, which makes them quickly react to any discovered change. External resource sources used in provisioning might become unavailable and cause integration errors for example. The provisioning service handles such 'expected' types of synchronisation issues out-of-the-box and will re-attempt to make change several (configurable amount of) times before signalling an exceptional issue requiring human attention. Any errors within internal workflow, logic and execution are constantly logged and notifications about these can be configured to send to special parties. Texuna IAM has a very powerful and flexible audit, logging and notification mechanism which guarantees that no issues will be overlooked.	
OBU		IAM	The University is a member of the UK Access Management Federation for Education and Research (https://www.ukfederation.org.uk/). Any proposed alternative SAML/SSO solution must be fully compatible with this, e.g. SAML1.0, SAML2.0 and any legacy required configuration.	Texuna IAM solution is very flexible regarding authentication mechanism and SSO implementation deployed in the organisation. In this particular case, we see three most likely ways for implementing SSO in the university: 1. Retain current Shibboleth (any adaptation to Texuna IAM's identity warehouse will be provided; or alternatively, the existing LDAP integration can be preserved). Texuna IAM would support authentication of human accounts (employees and students) via such external Shibboleth deployment and would manage authorisation access to Texuna IAM's API and UI using our own internally integrated OAuth 2.0 authorisation server. This authorisation server can be also used by other applications within the University requiring OAuth-based authorisation support. 2. Introduce Texuna IAM OIDC-based authentication mechanism. OIDC standard authentication can be switched on in the Texuna IAM authorisation server and potentially all/majority of authentication activities in the University can be done through it (assuming relevant systems support OIDC/OAuth 2.0 authentication/authorisation flow). To provide support for SAML 1.0/2.0 and all legacy processes around it, Shibboleth 3.x is backward compatible and can still be used as a legacy/secondary authenticator if configured and maintained as part of the IAM solution. 3. Introduce Google or another cloud-based service as the main SSO for the University. Texuna IAM can be integrated with pretty much any modern external authentication service if the University decides to use Texuna IAM as its main SSO solution. The optimal approach will depend our our Discovery phase findings after looking into the details of the current Shibboleth customisation and usage. If the existing service is heavily customised and heavily relied upon, option 1 might be preferable if the University takes a conservative approach. If Shibboleth is needed just for a few legacy purposes, options 2 or 3 may provide better alternatives.	
OBU		IAM	The University is expecting the current LDAP will be replaced as part of the project. It might be possible to use something like AD, but as previously stated the University expects users (particularly students) to have access to LDAP protected resource for longer than they have access to AD protected resources. If this can be achieved using a single AD this will be considered.	The Texuna IAM is a suitable alternative to the current LDAP as it incorporates the LDAP server component as well as alternative modern alternatives for advanced features. The solution was designed to deal with the problem of integrating a large array of heterogeneous methods of provisioning and controlling user access and mimicking Single Sign-On. Today the support of various open standards greatly simplifies the challenge and makes it easy to create a centralised service for authentication and for patrolling Role-Based Access Control. This includes the use of Shibboleth for Single Sign-On. As Texuna IAM stores all information about user identities and permissions in own identity storage and does not depend on a specific LDAP installation, it provides a set of options to choose from for each scenario. First, it can integrate with a legacy on-premises LDAP server which can be useful for a step-by-step migration process from current IdM system to the new IAM solution. Texuna IAM uses a set of client LDAP libraries and is able to propagate user data to/from any LDAP server and can be adapted to the existing LDAP infrastructure. Secondly, in order to improve maintenance efficiency and reduce likely network latency, the new IAM solution can include the replacement LDAP component within the same cloud infrastructure alongside other IAM components. Our AWS service is based on the Amazon Cloud Directory and AWS Directory Service which is a reliable and high-performance approach within a well-secured environment and tightly bound to the other Texuna IAM components. Interactions between IAM components are effectively instantaneous and robust. Thirdly, a strategy for a complete replacement of LDAP can be considered, but it's largely dependent on the specifics of the current legacy LDAP usage and legacy integrations, warranting further investigation.	

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OBU		IAM	Must be capable of enforcing the University's current Password Policy (available on request). In general, passwords must: *contain both upper and lower case characters (e.g., a-z, A-Z) *have digits and punctuation characters as well as letters e.g. 0-9, -_.!~*() *are at least twelve alphanumeric characters long *are not based on personal information, names of family, etc.	Texuna IAM provides a configurable password policy which can be adjusted according to customer requirements: number of upper and lower case characters, digits and special (not alphanumeric) characters and the whole password length can be set and changed. Additionally, a dictionary of disallowed words (or combination of characters) can be added. If the policy changes and user password does not satisfy new requirements, the user will be asked to change the password. In addition to server-side password quality checks, there is a JavaScript-based component that runs within the user browser which makes it easier for the user to populate the password according to the policy, displaying to user the quality of entered password, amount/type of characters still required to be entered etc. The User can also choose to opt for an automatically generated password.	
OBU		IAM	IAM: SPML2.0 & SCIM	Texuna IAM provides embedded SCIM endpoint which is standard for SCIM user provisioning (automating the exchange of user identity information between identity domains, or IT systems). Texuna supports SPML2.0 standard for systems that are not compatible with SCIM.	
OBU		IAM	SSO: SAML1.0, SAML2.0, OAuth2.0, OpenID (only relevant if the University decides to replace Shibboleth)	In addition we support the following authentication protocols and standards * Single Sign-On (SAML2.0) * Shibboleth identity provider * OpenID Connect (OIDC) / OAuth2.0 * Fido UAF U2F CTAP / W3C WebAuthn	
OBU		IAM	and could support XACML	Texuna IAM supports XACML3.0 through embedded AuthzForce Core PDP engine	
OBU		IAM	Must have dual site infrastructure with no single points of failure (including data centre failure) and/or we would expect a DR plan with potentially automatic failover.	Texuna propose Amazon Web Services (AWS) as the cloud hosting solution for the IAM solution services. AWS is the most feature-rich cloud service and offers guaranteed redundancy, fault tolerance, scalability and high availability; Texuna IAM suports both dual-site and automatic failover approaches for hosting. Dual-site hosting is provided via a clustered deployment across multiple Availability Zones within the London AWS region. For automatic failover, separate AWS EC2 instances are used and images captured and stored on S3 for backup and automated disaster recovery purposes - as an OBU-specific Amazon Machine Image. These will be used to keep infrastructure costs low - i.e. online backup images can be used to restore failing services within minutes without having to debug problems. This means we can shift the focus of the service from maintaining a complex high availability cluster to a simpler, automated 'kill-and-restore' service. A pair of service nodes will provide load balancing in Production and automatic failover in case of any loss of service with 1 node thereby assuring high availability in a read-only mode in any event.	
OBU		IAM	Must be highly available and have little or no downtime for upgrades and patching.	We use Ansible and Terraform to automate the infrastructure and platform configuration as software for Dev/UAT/Prod upgrades and patching with zero downtime.	
OBU		IAM	Must provide information on backups/restores: RPO & RTO (tbc)	Recovery Point Objective Separate AWS EC2 instances will be set up and images captured and stored for backup and disaster recovery purposes - as an OBU-specific Amazon Machine Image. These will be used to keep the infrastructure costs low - i.e. online backup images can be used to restore failing services within minutes without having to debug problems. Recovery Time Objective Texuna cloud hosting ensures that the IAM will be configured to be launched and killed instantly either through a UI or automatically in case of loss of service, as well as new cluster nodes added in real time through the UI to give almost linear scalability.	
OBU		IAM	Must be secure.	Texuna aligns information security to our corporate strategy giving it a top priority. Texuna is registered with the Information Commissioner as a data controller and is certified under the ISO27001 standard by BSI across all office locations. BSI audits our controls including data security and system integrity. We are also certified under CyberEssentials. We follow OSWAP best practices, and Texuna IAM has been independently pentetration tested on several occassions, most recently in 2018 by Capita. We go to great lengths to give assurance that we have taken all precautions necessary to deliver a secure IAM solution according to client needs.	
OBU		IAM	Must have fine-grained RBAC for access and 'admin' of IAM system itself.	User permissioning is entirely role-based and is configured using security groups dedicated for different roles. Users are placed in groups to allow access rights to be maintained at a Group level, rather than on an individual user basis. Groups may also contain other Sub-Groups, enabling access rights to be inherited from a parent group. One group may grant access to the whole site while another group may limit access to only some content within the site. Texuna IAM has no restrictions on the number of groups, or the number of users assigned to a group. Groups can be created managed and maintained via a backoffice user interface, negating the need for system or supplier updates as new roles and groups arise. Texuna IAM includes a powerful Group access rule module, which allows for business rules to be defined. These rules permit users access to groups based on any data maintained within Texuna IAM or sourced externally (i.e. based on a user's profile they may be permitted access to a group and hence an application/service). Again, a back office user interface allows for these rules to be maintained independently of any system release, ensuring Texuna IAM is adaptive to changing environments and needs. Groups and roles can be created in Texuna IAM, but the mechanism for authorisation based on assigned groups and roles may vary depending on the connection in place between the Texuna IAM and the particular application/service.	

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OBU		IAM	Must have auditing & reporting.	Texuna IAM has multilevel audit trail. The audit trail is configurable to be as light touch or as extensive as required. Audit follows these principles: * User access control - so that permissions are granted to individual users so that the audit record shows the individual. * Accountability for all record updates and changes including additions and deletions, with online viewable/searchable audit history logs. * All data operations can be independently audited * Audit logs are themselves subject to access control management The above ensure that Texuna IAM provides a complete audit traill that records: * who accessed the data * when the data was accessed, * what data was accessed * what changes were made The audit trail tracks access to data and this includes report generation so that it is possible to identify and analyse the reports generated out of the system as well as screen views, i.e. there is a complete record of all user activity. Audit, history and versioning features ensures all users actions are tracked so that there is a complete history of events and transactions undertaken with date and time stamps. The audit trail includes a highly granular level of detail so that views or changes at field level will be recorded. Audit records are searchable using filters and subsets can be exported as CSV / Excel file for further analysis and accountability tracking. The Audit trail also tracks automated processes, such as web service interactions. Exact data sources and destinations can be traced to the date and time of the upload or download.	
OBU		IAM	Must send output access and account change logs to SIEM product (tbd).	Texuna IAM may be configured to send access and account change logs to SIEM product. We support various integration approaches for most frequently used SIEM systems like Slunk or ELK-based (ElasticSearch-Logstash-Kibana) SIEM systems. It includes logs streaming or REST API event sumbission.	
OBU		IAM	All network traffic must be encrypted.	All traffic is encrypted in transit (TLS), and is also encrypted at rest. Texuna IAM takes a best practice approach to securing data. No shared secrets are directly stored, but are salted and hashed. Furthermore, a minimum set of authentication data is cached for maximum performance and exposed to the external internet. Data in Transit uses: * Industry standard SSL between an authenticated web browser using the HTTPS protocol (Transport Layer Security - TLS1.2). * A combination of algorithms to lock keys with ciphers: SHA 256 bit (SHA-2), RSA 4096 bits key, AES256-SHA384. * Further data encryption in transit through public cloud hosting for all IaaS, PaaS and SaaS services. * IPsec (AES-256, SHA-256) from inhouse through Virtual Private Cloud or Virtual Private Network.	
OBU		IAM	All data must be encrypted.	Texuna IAM use encryption where ever feasible. Texuna IAM automatically applies encryption to data at rest to: * BLOB/Object Storage Services (data buckets used for import of feeds). * Postgres Database. * IAM, with transparent data encryption controls applied to confidential data. Access to encrypted data is closely controlled through: * Encryption keys for ciphering are stored separately from application databases to mitigate risks. Data in Transit uses: * Industry standard SSL between an authenticated web browser using the HTTPS protocol (Transport Layer Security - TLS1.2). * A combination of algorithms to lock keys with ciphers: SHA 256 bit (SHA-2), RSA 4096 bits key, AES256-SHA384. * Further data encryption in transit through public cloud hosting for all IaaS, PaaS and SaaS services. * IPsec (AES-256, SHA-256) from inhouse through Virtual Private Cloud or Virtual Private Network.	
OBU		IAM	All data should be encrypted at rest.	Texuna IAM use encryption where ever feasible. Texuna IAM automatically applies encryption to data at rest to: * BLOB/Object Storage Services (data buckets used for import of feeds). * Postgres Database. * IAM, with transparent data encryption controls applied to confidential data. Access to encrypted data is closely controlled through: * Encryption keys for ciphering are stored separately from application databases to mitigate risks.	
OBU		IAM	Any stored password must be encrypted and ideally (unless absolutely required e.g. password sync?) use one-way encryption.	All passwords to be stored in the Texuna IAM solution are first hashed with a Salt using SHA512 - strong, industry standard, one way encryption. The Salt phrase is securely managed by system admistrator.	
OBU		IAM	Any end-user access to the IAM system must be available securely via the internet.	Access to Texuna IAM solution is securely provided via the internet using encryption in transit.	
OBU		IAM	Unless MFA is used, 'Admin' access to IAM itself must not be via the internet (i.e. if hosted offsite, a VPN tunnel should be used).	Texuna IAM requires MFA for 'Admin' users to provide highest standards of security. As a best practice we also restrict highly privileged systems administration access via VPN tunnel.	

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OBU		IAM	All connections to/from Brookes hosted data source and Brookes hosted 'output' resources must not be via the internet instead via IPSec VPN unless the University is assured that it will be 'secure'.	Texuna guarantees that IPSec VPN connections will be configured from cloud VPC for Texuna IAM to connect to all Brookes-hosted data sources and Brookes-hosted 'output' resources. These will be trusted connections with applicable security certs, available within trusted subnets not otherwise directly accessible to the internet.	
OBU		IAM	Must enable reconciliation of accounts to highlight exceptions and potentially automatic remediate (Oracle Waveset provisions accounts in AD but it will also possible to add accounts direct in AD).	Texuna IAM will reconcile accounts to highlight exceptions if data is provided as feeds from other systems (automatic aquisition is possible). Automatic remediation is provided through invocation of standard provisioning procedures for accounts with discrepancies. Accounts that are created in AD directly are imported from feed as standard import and provisioning procedure.	
OBU		IAM	The University may run independent penetration tests against the system.	Texuna carries out penetration testing on all delivered solutions to ensure our software is secure from known vulnerabilities. From time to time our customers also engage independent penetration testers to check solutions and lessons have been learned from this process and incorporated into Texuna's standard practices. University may run independent penetration tests against the system.	
OBU		IAM	Must be able to take inputs from various sources including databases (using configurable SQL queries) and flat files.	Texuna IAM has built-in ETL engine that helps add data inputs from sources of various complexity using a visual editor. It is possible to configure SQL queries for one-off or regular import or process data from flat files.	
OBU		IAM	Must be capable of creating/updating/deleting resource accounts using more or less any standards based APIs, e.g. Google, LDAP, SQL commands (to databases), Linux scripts, Active Directory, PowerShell.	Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Connectors for synchronising to Google, LDAP and ActiveDirectory exist out-of-the-box and can be customised for any specific use-case as needed. These connectors are written in Java which gives us the ability to use/reuse existing customised connectors of the replaced Waveset system if so desired). All connectors are configured within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself.

Industry standard and SCIM-compliant rest-API is provided out-of-the-box.

So called provisioning to Linux (i.e. management of user accounts, ssh keys etc.) and database tables is also supported. | |
| OBU | | IAM | Ideally, the new system could manage users ssh keys, DB and Linux accounts. | Using UNIX bundle connector within our standard provisioning framework, it's possible to manage external Linux machines via a provisioning service, i.e. do 'provisioning to Linux'. The following actions can be implemented and customised:
- User management – create, update, delete user, enable/disable user, enable/disable user password
- Password management – set password, change password, enforce password policy, enable/disable password
- Public keys management – provision different public keys to the ~/.ssh/authorised_keys
- Group management – create, update, delete group
- Managing sudoers files for users and groups – give permissions either for group or user which will be transformed to the sudoers file
- Group membership management – add/remove user to/from group | |
OBU		IAM	Should suspend accounts (perhaps based on type) if the user does not login to IAM within X days of having a new account (depending on how passwords are handled, i.e. if they need to login to IAM to get and/or set their initial password)?	Texuna IAM provides a powerful and customizable processing behaviour/workflow for different types of users, including account suspensions. If a new user record requires additional processing and confirmation, this user is still stored in Texuna IAM database but as preliminary record which is not synchronised/provisioned anywhere until all necessary checks are passed. These checks may involve time of inactivity etc . Once user record passes eligibilty checks and then provisioning component would synchronize/provision this account into required external systems (in case of update provisioning component will additionally deprovision user record from systems user was removed from - all this according to configurable provisioning workflow rules).	
OBU		IAM	Not all University users have a Windows workstation (PC) and/or log into an AD domain joined PC, so any solution is not expected to depend on PC logins.	Texuna IAM provides standard authentication and authorisation protocols including LDAP, SAML 3.0 and OAuth2. Our solution does not impose any restrictions on hardware or software as long as industry standard protocols are used.	
OBU		IAM	Must be compatible with the Brookes Connectivity network project (currently in scoping phase) which is looking to refresh our network	Texuna IAM is compatible with the Brookes Connectivity network project. Solution does not impose any restritions on network topology or technological stack if connectivity between IAM and users is provided.	
OBU		IAM	Should be scalable (horizontal scaling preferred). This is of particular importance at key times in the academic year.	As all components in the system are implemented as stateless REST API services, they support horizontal scaling.
Autoscaling using cloud provider capabilities and/or scheduled scale-up at key times in the year can be arranged if required.	

	Sector	Solution	Question	Template Response	Picture number
Intro				Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.	
OBU		IAM	Should provide performance metrics e.g. 'processed this many students, these many are still to be processed'.	Texuna IAM provides performance dashboards with various metrics. The Dashboard is based on extensive audit trail of tasks queued for processing and processed. Information like 'processed this many students' and 'students queued for processing' can easily be reported. Texuna IAM provides a complete audit traill that records: * who accessed the data * when the data was accessed, * what data was accessed * what changes were made The audit trail tracks access to data and this includes report generation so that it is possible to identify and analyse the reports generated out of the system as well as screen views, i.e. there is a complete record of all user activity. Audit, history and versioning features ensures all users actions are tracked so that there is a complete history of events and transactions undertaken with date and time stamps. The audit trail includes a highly granular level of detail so that views or changes at field level will be recorded. Audit records are searchable using filters and subsets can be exported as CSV / Excel file for further analysis and accountability tracking.	
OBU		IAM	Must have a separate development and production systems. Ideally a separate test system as well. If relevant, vendors are requested to provide costs for separate test, development and production systems to production system.	Texuna provides separate Production and Development environments. Texuna may provide Test environment as well. All environments are deployed in AWS using infrastructure-as-a-code approach which guaranties identical and error prone configuration of environments. Pricing is based on number of nodes used and node price is standard across environments (although dev and test environments can ultimately be provided on demand rather than full time to save on costs once the full solution is operational).	
OBU		IAM	Could be able to support 'Form-Fill Single Sign On' applications.	Texuna IAM is able to support 'Form-Fill Single Sign On' applications.	
OBU		IAM	Must have flexible well documented standards based APIs, see below for details.	Texuna IAM have flexible and well documented standrds based APIs, details are provided in responces to questions below	
OBU		IAM	Must have fine grained, modular APIs for all IAM functions. For example, endpoints for; data import and export, audit aggregates, management, health, and reporting etc.	Texuna IAM exposes all its administrative/management, user-related, reporting and audit functions as REST APIs. These endpoints are separated by service (which has a specific area of responsibility) and within one service each endpoint belongs to a specific category which can have subcategories. At least following separate services exist: - main management/administrator (to read/write current configuration of all aspects in IAM) - user self service (collection of APIs for user to view/edit own account, change password and so on) - provisioning processor (Waveset replacement reading from sources and provisioning changes to integrated systems) - audit collector service (all possible audit data collected in asynchronous manner) - reporting service (generating reports, custom exports for analysis etc.) - possibly several of them targeting different datasets according to concrete needs.	
OBU		IAM	APIs should be stateless.	The solution adheres to the RESTful statelessness constraint in order to maximize visibility, readability and scalability. Each request from client to server contains all of the information necessary to understand the request, and does not take advantage of any stored context on the server. Session state is kept entirely on the client.	
OBU		IAM	APIs could be loosely coupled, e.g. microservices with no interconnected dependencies.	The solution contains several separate microservices each addressing separate concerns and performing their own well defined function. In addition to the main web application API through which all management/administration functions are performed, the following loosely coupled components are included: user self-service; provisioning processor; audit collector service; reporting service(s). These services are functionally independent. Asynchronous message-based pub-sub communication patterns are used where possible.	
OBU		IAM	APIs should be horizontally scalable at peak times.	As all components in the system are implemented as stateless REST API services, they support horizontal scaling. Components can also be packaged in containers and scaled independently across a kubernetes platform. Alternatively autoscaling via AWS capabilities can be arranged, or pre-arranged scale up at key points of each academic year can be done manually.	
OBU		IAM	APIs could have interdependencies on each other e.g. miniservices.	Although loose coupling is an ideal, in some cases it's not possible to create a system based on 100% independent services. In this system there's inevitable communication between main management/administration API and the API of the provisioning service: the main API makes calls to the provisioning service to perform some change or make request about state. There are also other API endpoints for internal use by other system services to minimise code duplication and avoid creation of too many services.	
OBU		IAM	APIs should be managed centrally, and can be transplanted without loss of service or function.	We have successfully migrated a live service between cloud providers and also swapped integrated services and network settings during live operations without loss of service. Service providers can use our built-in tools to check their SAML message exchanges and do their own debugging against the working solution. The source code for our APIs is stored in Git source control with each service separated into own project/repository. The code for each microservice can be amended and automatically tested, and then a new build of each service is released and deployed. The whole process is automated using special build software available to developers and system admins (including University staff who will participate in the development and release process). The build and release server is part of the system and well-secured. To avoid periods of inactivity during upgrades and planned maintenance, critical parts of the system are deployed using a zero-downtime paradigm. The API is designed and developed to support backwards-compatibility and blue-green deployment techniques.	

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OBU		IAM	APIs should be well documented and support standard architectures e.g. RESTFul, and standard interchange formats e.g. XML and or JSON.	Texuna uses tools like Swagger/SwaggerUI for automatic documentation and visualisation of the current working API. Each endpoint is comprehensively documented using standard rules in a very user-friendly form. The entire REST service is described in YAML or JSON format.	
OBU		IAM	APIs must be protected and secured using a known security standard e.g. OAuth 2.0. API credentials must be managed within the IAM - with proper auditing and privileged management.	Texuna IAM exposes all its administrative/management, user-related, reporting and audit functions as REST APIs. APIs are secured, and open standards inclding OAuth2.0 are supported. API endpoints are separated by service (which has a specific area of responsibility) and within one service each endpoint belongs to a specific category which can have subcategories. At a minimum the following separate services exist: - main management/administrator (to read/write current configuration of all aspects in IAM) - user self service (collection of APIs for user to view/edit own account, change password and so on) - provisioning processor (Waveset replacement reading from sources and provisioning changes to integrated systems) - audit collector service (all possible audit data collected in asynchronous manner) - reporting service (generating reports, custom exports for analysis etc.) - possibly several of them targeting different datasets according to concrete needs.	
OBU		IAM	An API Gateway could be used to manage authentication and authorisation, segregate public and private APIs, allow rate limiting, mix polyglot APIs, and shield clients from backend API changes.	Texuna IAM uses Amazon API gateway for this purpose. It is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale. Using UI console or config tools like Ansible/Terraform, we create a "front door" REST APIs endpoints for applications to access data, business logic or functionality. Amazon API Gateway handles all the tasks involved in accepting and processing up to hundreds of thousands of concurrent API calls, including traffic management, authorization and access control, monitoring, and API version management.	
OBU		IAM	Please identify what you see as the key security issues and challenges of an enterprise IAM system and how your solution will address these. Areas the University expects you to cover are: *Security architecture *Access control to the IAM system itself *Audit and logging *Vulnerability management *Secure development *Supply chain security	Texuna view the threat of hacking and DDOS as key issues and challenges to any enterprise IAM, and believe in future every organisation needs to be prepared to respond to actual breaches rather assuming the necessary arrangements are in place to avoid a breach. However our plans do provide for maximising lessons learned National Cyber Security Centre, OWASP Top 10, CVE (Common Vulnerabilities and Exposures) and Jisc (Janet CSIRT - Computer Security and Incident Response Team) who havesuccessfully handled a number of attacks and breaches or reviewed and given guidance on the most effective corrective and preventative actions. Risk mitigation and incident management processes need to be understood and in place. GDPR furthermore outlines obligations on what data should be kept, how it should be processed and secured, and what should not happen. Texuna have taken all this onboard our approach to security. Safeguarding issues / data protection: Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to make TaxunaIAM secure and to safeguard sensitive data under GDPR obligations. The following mechanisms are minimum: *Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines. *Secure and robust database design and software architecture. The solution is subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition: - All data transmitted between the browser and the server via encrypted channel (SSLv3) - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply: ** encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256 *A least privileged access control policy; *Strong password policy with the ability for users to change password if needed. * Step-up authentication with MFA/U2F for power users Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: * avoid highly bespoke permissions on low level granularity (simplicity facilitiates better management) * encrypt or hash sensitive data where privacy is required * separate the management of user mapping to groups from the management of access permissions with groups Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported. GDPR provides a good approach to understanding our obligations to users - and what to do when security incidents and breaches arise. Cloud security best practices mirror many of the same principles around accessibility, encryption, and secure network architecture. Best practices in MFA are reducing the vulnerabilities associated with the centrally stored password (or its elimination in the case of Fido/U2F). Weblog and syslog streaming to indepenent analysis servers that are forensically secure ensure that incidents can be monitored and investigated without loss of evidence by advanced adversaries. Regular OWASP-approved testing and independent pentests assure our IAM is fit-for-purpose and our development practices are security aware. We also work to ensure we are aware of Zero Day Vulnerabilities, and as a heavy user of Open Source Software we continuously monitor critical patch updates from the vendor and community sources to plan and inform our regular and ad hoc maintenance programme.	

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OBU		IAM	Does the solution support account request and workflow features to support this type of approval process?	Texuna IAM provides a powerful and customisable processing behaviour/workflow for different types of users. If a new user record came from some source and requires additional processing and confirmation, this user is still stored in Texuna IAM database but as preliminary record which is not synchronised/provisioned anywhere until all necessary checks are passed. These checks may involve confirmation of user account by other users who enjoy specific privileges in the system (Texuna IAM can notify responsible users about it). Once user record passes eligibilty checks and then provisioning component would synchronize/provision this account into required external systems (in case of update provisioning component will additionally deprovision user record from systems user was removed from - all this according to configurable provisioning workflow rules).	
OBU		IAM	Can provisioning be triggered by a third party system using an API?	Provisioning of a user account in Texuna IAM can be triggered: - automatically - by default (according to existing rules, when change requiring provisioning is delected, in zero or almost zero waiting time); - manually (by a user who has the permission to perform manual synchronisation/provisioning) - externally (by making an REST API call to a specific endpoint, if caller has a machine-account within Texuna IAM with certain permission to invoke the service; authorised via OAuth 2.0 service component) - if options above are not enough for some reason, it's possible to develop additional custom integration point (but it is not recommended).	
OBU		IAM	Can the product call third party SOAP web services?	Yes. Ideally, all kinds of integrations with input and output user resources would be performed by the provisioning service component (Waveset replacement), according to its rules and using standard or customised connectors, including those for SOAP/SPML/XML technologies. Where these don't meet requirements, it is possible to provide a custom SOAP client for any given use case.	
OBU		IAM	Does the product support role provision into third party systems?	Yes, the purpose of the new provisioning service (replacing Waveset) is to communicate with all external input and output user resources, according to configured workflows. Provisioning implements services such as Create(new), Update(existing) and Delete(de-provision) of user records as well as their characteristics (including roles/groups/permissions they belong to) in all configured output destinations.	
OBU		IAM	If academics in Teachers Pension Scheme take their pension (but continue to be employed by the University) there must be a one day break in service within the HR system. This can sometimes cause email accounts to close down and access revocation. How can the solution reduce this risk?	Texuna IAM has customisable processing behaviour/workflow for different types of users, including account suspensions. It is possible to provide exceptions for one or more days for different service events to be triggered if this dependency is required as part of the process. Alternatively the workflow may be configured to validate user status through some other additional service(s) to identify if a break in service is in fact part of Teachers Pension Scheme activation or not. If a user record requires additional processing and confirmation, this user record can still be stored in Texuna IAM database as a preliminary record which is not yet synchronised and/or provisioned anywhere until all necessary checks are passed. These checks may involve time of inactivity, statuses in external systems etc.	
OBU		IAM	How would the IAM solution respond to changes to start and end dates in turns of extending, ending, creating access?	Texuna IAM enables bespoke processing behaviour/workflow for different types of users and different actions in the system: like extending, ending and creating access. The system can identify affected accounts based on changes in dates before triggering standard provisioning or deprovisioning tasks. If a user record requires additional processing and confirmation, this user is still stored in Texuna IAM database as a preliminary record which does not yet trigger any actions anywhere until all necessary checks are passed. Such checks may involve validation of start and end dates etc combined with other properties and attribute values. Once the User record passes the required eligibilty checks and then provisioning component would trigger the necessary account updates for each of the identified external systems that would be impacted.	
OBU		IAM	Does the solution have any mechanism to identify and flag incorrect/corrupt data from source systems?	Texuna IAM provisioning service employs the concept of 'shadow' records in a kind of historical data warehouse - an internal representation of each record of data which is read from the source (database tables, flat files or other types) and maintained over time. Two types of data incorrectness are possible: 1. Data can't be read from the resource due to some formatting issue. In this case the provisioning service will write an extensive amount of data into an internal log and post special records into audit about this event; shadow representation will not change and therefore user accounts won't change; an automatic exception report will trigger manual intervention and troubleshooting activity will be required from maintenance staff to investigate this issue using logs and audit data. 2. Data is successfully read from the source into the 'shadow' representation but following custom checks and validation algorithms an issue is highlighted with one or several records. In this case the User record won't be updated with a change and will be marked with a collision flag which is picked up for exception reporting; maintenance staff will need to investigate the collision issue using logs and audit; email notifications can be sent with information about problem; special reports can be produced).	
OBU		IAM	How would the solution respond to changes in line management structures and regarding role based access control and approvals?	Texuna IAM has flexible management component for role based access control and approvals process. OBU system administration team will be able to grant permissions for new line management team members and revoke from those who left. Texuna IAM provides the concept of 'Organisations' which are hierarchical units reflecting line management structures or directorates/faculties. Approval processes and responsible persons may be configured independently for each 'organisation'. Changes in any given organisation or sub-organisation structure and rules can be represented as new organisation versions whereby relevant users can be transitioned to the new organisation and/or be subject to both organisation versions if both approaches need to be supported concurrently.	

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OBU		IAM	How would the solution manage changes to directorate/faculty or departmental information?	Texuna IAM provides the concept of 'organisations' which are hierarchy units reflecting line management structures or directorates/faculties. Approval processes and responsible persons may be configured independently for each 'organisation'. Texuna IAM has a flexible management component for role based access control and approvals process. System identifies affected accounts set based on changes in dates and starts standard provisioning process. As outlined above for line management - organisational structures can be handled as versions and new versions put in place with different source integration rules, delegation management and resource provisioning services, and decisions made about which user groups are transitioned and if that happens in a mutually exclusive way or not.	
OBU		IAM	Does the product include an authentication/login page for end-users?	Yes. Texuna IAM provides several options for authentication and improved single-sign-on user experience. First, it can be fully adapted to existing external SSO solution deployed in the organisation. It's possible to have an external Shibboleth system acting as SSO for various systems in the University as the tender document suggests. In this case, our solution would give user a link and navigate a user for authentication to this external Shibboleth system. After successful authentication, SAML 2.0 assertion would be received by our OAuth 2.0 server provider (included in Texuna IAM solution) which would provide authorisation tokens giving user access to Texuna IAM's services and endpoints, including self-service web application.

Secondly, other options exist for user authentication (while preserving the whole OAuth 2.0 authorisation process described previously). Texuna IAM OAuth 2.0 server can be configured to use its own internal authentication service based on the OIDC standard (instead of Shibboleth). This service provides its own login page. Another option is to use some third-party authentication service like Google as the University SSO and integrate it with Texuna IAM's OAuth 2.0 authorisation mechanism. | |
OBU		IAM	Does the product support a new user self-serve process, triggered from the login page?	Yes. Texuna IAM includes a special 'user self-service' component with all user self-management functions exposed as REST API endpoints and accompanied with modern web UI interface. Subject to permissions the user has on the system, a user can edit or view (or be unable to view) certain data or pages. When a user requests access to the self-service web application, he/she is navigated to the login page (if not authenticated yet). After successful authentication, the user issent to to a page with the self-service functions available to them. If the user is required to populate some mandatory info, especially if user account is not yet activated or is completely new, all other functions are disabled until necessary data is provided.	
OBU		IAM	Does the product support multiple authentication factors to be entered by the user during the new-user process?	Yes. System supports multi factor validation process e.g. via email or SMS message. It's also possible to create a completely new account using the 'user self-service' functionality. To make it happen, a user must provide some additional information to prove his/her eligibility to be added to Texuna IAM system. Such information might be identity documents of a specific form and format, email, username in some another system sometimes accompanied with some secret text/file. TOTP and U2F/WebAuthn are also supported. The exact requirements can be defined to the university's needs and then configured. After recognising a user's eligibility, Texuna IAM will set the user account status as 'Not activated yet' before then triggering the next steps in a standard activation process.	
OBU		IAM	Does the new-user process use a time-limited account activation email to further authenticate the user?	Yes. To activate an account, the system can generate a secure one-time code which is impossible to acquire with brute force attack. This one-time code can be used only once to open the secret page where user can set own password and/or other secret data. The one-time code can be set to a defined expiration period, which is configured according to the University needs. The code can be sent to user via email or SMS. Since it is fully automated nobody other than requesting user can see the code (i.e no way for an admin user or delegate to copy and paste it to the requesting user).	
OBU		IAM	Does the new-user process allow the user to set their own password?	Yes, user can populate own password and Texuna IAM first checks the password to be according to the password policy set in the system. In addition to server-side password quality check there's also a user-oriented JavaScript-based component which helps the user to populate the password according to the required complexity, immediately displaying and advising the user concerning the quality of the password being chosen. The user can also opt to use a system-generated password. Password setting options can be turned on or off and both manual and automatic generation can be made available to user.	
OBU		IAM	What steps can be taken automatically once the password has been set? Can third party services be called to update the password and activate the account?	Any 3rd party service can be triggered, including a delegation workflow or other bespoke process. Once user account has been set, the system would record a change event, and the provisioning component would quickly react to this event and trigger the provisioning requests to external integrated systems according to University defined workflow rules.

Ideally, provisioning would take a very little time between the moment of account activation and successful provisioning to other systems. By default, the provisioning would be triggered automatically without any extra activity; in addition to that, provisioning can be forced manually or by making a call to a specific REST endpoint. | |
| OBU | | IAM | Explain the support that you will provide throughout the installation process to assist with any technical tasks relating to integrating the system, setting the system up and preparing it for operational use. | Texuna will work collaboratively with University to delivery the project. Texuna specialists will do system deployment, training and handover to OBU system and user administrators. Texuna business analysts, developers and testers will work collaboratively with the OBU team through the system configuration, integration of external systems, initial accounts imports and transition to Business as Usual operations.

Texuna's Discovery and requirements gathering is a cyclical agile multi-step process to Elicit, Specify and Validate.
* During design, staff will contribute to requirements definition workshops
* During collaborative development and deployment, a joined-up OBU-Texuna team should jointly deliver application bundles, configurations and procedures to ensure successful training and handover.
* At sprint reviews and transition, a joined-up team must take part in testing and acceptance.
* Client staff at all levels will be trained during the transition. | |

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OBU		IAM	Explain the proposed model of interaction with OBU in terms of interviews, workshops, training, delivery, knowledge transfer and support	A critical factor for an IAM's delivery and ongoing success is onsite staff interaction and engagement. Texuna suggest: * Visual requirements workshops with broad scope and lots of stakeholders * Interview sessions when complex requirements are owned by a single individual, or small group, or changes are politically sensitive. * Detailed existing system authentication and authorization process review with system administrator for a quick deep dive into existing configurations. * During discovery, OBU IAM team need to participate in interviews/prioritization workshops, acting as source system/data owner liaison to ensure data access. They should also lead cross-functional discussions to develop the lingua franca and standards for systems integration. Texuna's requirements gathering and delivery is a cyclical agile multi-step process to Elicit, Specify and Validate. * During design, staff will contribute to requirements definition workshops * During collaborative development and deployment, a joined-up OBU-Texuna team should jointly deliver application bundles, configurations and procedures to ensure successful training and handover. * At sprint reviews and transition, a joined-up team must take part in testing and acceptance. * Client staff at all levels will be trained during the transition.	
OBU		IAM	Explain the proposed model of communication medium in terms of on site or remote during implementation and as a live service.	OBU should expect regular face-to-face onsite working - initially more intensive during a brief Discovery Phase when close collaboration is most needed for requirements to be elicited, specifications tested and whenever Sprint Reviews are done with stakeholders. Texuna will rotate many team members from its London and Cork office to onsite regularly throughout the project. This allows joined-up team communication and collaboration to oversee and manage progress effectively. Various specialists will engage directly with users and IT at OBU as needed, and there will be better broader upskilling of OBU staff in general. Some onsite sessions will be ad hoc as needed (e.g. DevOps for hosting/BCDR training etc), as well as remote collaboration via tools such as chat/video or online wiki or document repositories as per OBU guidelines. Texuna can provide collaboration tools or work with OBU agile work tools, if already in place and suitable. Communication will be based on shared workspaces and environments with a single shared transparent project repository, where requirements, documents and training materials can be shared. During live Business as Usual service, Texuna will be available remotely and will only come on site as and when required for ad-hoc purposes. A fully managed support service is available and can be run remotely if required.	
OBU		IAM	Provide your most recent roadmap and/or information on future charges on the development of offered software solution for the coming 1-5 years.	Texuna have been operating a clustered high availability IAM for Department for Education for 6+ years on a bespoke basis. The core service is currently delivered on AWS and has the previous run on the private cloud (VMWare at Eduserve) and in-house at Texuna (bare metal). Texuna has set out an independent roadmap for the IAM service and has provided all the latest open source integrations required for compliance with latest industry standards in IAM. This includes Fido2.0, OIDC, and Shibboleth / SAML3.0 standards. Going forward, Texuna are committed to further developing the solution to be suitable as a service for any university and education institution. We will support integration with the UK Identity Federation and Eduroam at no extra cost to the university. We will also automatically adopt any new internationally published and accepted open identity standards. We will also provide free integration with common physical access management solutions such as Maxxess, Lenel and S2 (each of which we have a relationship with through our partner Texuna Integrated Security Systems Ltd). We will not provide free integration with other bespoke local university systems and services, however. We will be able to leverage existing investments such as the OBU EDW and Pentaho Data Integration tools however should this be deemed useful and desirable. Because Texuna's IAM is not already in use at a University we are willing to negotiate partner rates for the development of a future roadmap that is mutually beneficial for the university and for Texuna. We are committed to the idea of self-sovereign identity for user self-management, and by extension to the decentralised management of identity and credentials through technologies such as blockchain and U2F. We have launched an internal project around identity ownership and cultivation called Field-ID and looking to expand our efforts in the space by integrating with IPFS for self-storage of personal data and blockchain for establishing identities. We are actively considering membership of the Decentralised Identity Foundation and have done extensive research on Sovrin and uPort in particular.	
OBU		IAM	Provide information on how you communicate / train system administrators on any upgrades and bug fixes to the solution.	OBU system administrators will be notified about any upgrades and bug fixes to the solution through the agreed communication channel (usually email). We review all bug announcements for software library components on a continuous basis and will make quarterly updates on an ongoing basis unless any critical patches are required. On a fully managed service, Texuna will automatically apply patches as and when required without service downtime. Texuna will rotate team members from London and Cork offices to OBU site regularly throughout the project. Various specialists will engage directly with users and IT at OBU as needed, and there will be better broader upskilling of OBU staff in general. Some onsite sessions will be ad hoc as needed (e.g. DevOps for hosting/BCDR training etc), as well as remote collaboration via tools such as chat/video and online wiki or document repositories according to OBU guidelines. All major aspects of the solution already have significant documentation available and training materials will be updated to fit the University needs.	
OBU		IAM	Detail the responsibility and relationship of each party in terms of the commercial arrangement.	Texuna us open to discussion on the commercial arrangement. The basis of the proposal is that a fully managed service can be delivered by Texuna to manage and maintain the infrastructure over time based on a monthly subscription. However, it is also possible for OBU to assume this responsibility and operate the infrastructure in-house or through its own AWS cloud account if necessary. Where Texuna are asked to operate the service on a fully managed bases, Texuna will deploy the IAM to AWS infrastructure - typically in a Texuna account but it can also be in an OBU account as long as Texuna have full administrative access.	

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OBU		IAM	The University requires an understanding of proposed supplier resourcing to accommodate the governance, design, analysis, development and support proposed	Texuna will work with the University to identify the skills and roles required to deliver a successful project. By reviewing the available resources, skills and know-how at the university, Texuna can identify any skill gaps or shortfalls that Texuna can fill. By default, Texuna will provide a Technical Architect to guide overall solution and infrastructure approach that will fit within the University enterprise architecture, along with a Scrum Master that will help guide a collaborative team of University and Texuna experts. Texuna would expect that the University will also provide a mirrored technical or enterprise architect and a project manager or scrum master to help drive the project outcomes. Furthermore, Texuna expect a clear business owner and project sponsor to be identified and consulted on the project feasibility and governance decision-making. Thereafter, a collaborative team of IAM, software and integration experts can be put together between the university and Texuna to assure project outcomes. This will include key resources for the roles of Business Analyst, developer/integration expert, testing, User Design, network infrastructure, DevOps and User Administrators.	
OBU		IAM	Describe your high level delivery approach for the project as a whole stating clear outputs.	Texuna use a modern, agile approach within a Disciplined Agile Delivery methodology that respects Enterprise Architecture and allows clients to contract suppliers for projects in a controlled way using approaches such as Prince2. Our technical architects work with client Architecture Owners to ensure that solutions fit within the business and IT context of the enterprise, and is delivered within a prioritised portfolio of work programmes. Delivery is managed by a separate Scrum Master and is done partially onsite in an agile Construction phase with Test Driven Development and implementation as required. A multi-disciplined team is allocated to the project to ensure there are no skill gaps or shortfalls to deliver required project outcomes. An agile team is created including client staff to leverage available know-how and ensure collaboration is maximised. In the case of the IAM project, Texuna recommend a short Discovery Phase to finalise the enterprise context and create a backlog of prioritised User Stories across a number of Epics within Rolling Wave timeboxes. The Discovery Report will outline the number of delivery phases required, and prioritize the quick wins and strategic priorities. During the Discovery Phase, the proposed infrastructure will be tested for feasibility through a coded Architecture Spike. Each subsequent delivery phase (Rolling Wave) will focus on key system integration and output, and the User Story and Requirements backlog will be delved into finer detail. The backlog will be delivered within the defined Rolling Wave timeboxes using the Scrum agile method with bi-weekly Sprints. A delivery report will be produced at the end of each Rolling Wave outlining how requirements have been met, User Accepted Testing completed and the plan to transition into the working production environment. Clear handover and training sessions and artifacts will be delivered after each Rolling Wave. Texuna expect separate delivery phases for Employee, Student and External user onboarding.	
OBU		IAM	Describe the delivery approach to documentation, knowledge transfer, handover and support stating clear outputs.	Handover / BAU transition will be planned with OBU. Texuna IAM is a fully managed service. However OBU collaboration and familiarisation with IAM working practices during the project delivery is a key part of knowledge transfer. Texuna will rotate many team members from London and Cork office to onsite regularly throughout the project. This allows joined-up team communication and collaboration to oversee and manage progress effectively. Various specialists will engage directly with users and IT at OBU as needed, and there will be better broader upskilling of OBU staff in general. Some onsite sessions will be needed (e.g. DevOps for hosting/BCDR training etc), as well as remote collaboration via tools such as chat/video and online wiki or document repositories according to OBU guidelines. Texuna can provide collaboration tools or work with OBU agile work tools, if already in place and suitable. Communication will be based on shared workspaces and environments with a single shared transparent project repository. This is where requirements, documents and training materials will be shared. Official AWS and Linux certification is useful for general upskilling of technical staff who wish to get a deeper appreciation of the solution for self-service support and maintenance. Texuna will indicate a training plan for key roles. * Texuna IAM training materials and user-guides and Texuna-delivered training sessions for key roles: ** Technical users (tools for integration, BCDR and troubleshooting). ** Power users (deep dive into configuration and administration tools). System administration documentation and screen-capture videos will cover: environments, deployments, Installation, upgrade, troubleshooting/FAQ, scheduled tasks, maintenance, monitoring, backup, BCDR.	

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OBU		IAM	Describe the proposed approach to Business Continuity Resilience, Recovery and Contingency.	**Business Continuity Resilience** Texuna has more than a decade ensuring business continuity. Achieving compliance with ISO 27001 and ISO 9001 standards was a key part of establishing a resilient, process-based culture not dependent on any key individuals. Texuna's risk and incident management, with corrective and preventive actions and estimated risk capital allocations helps proactively control risk - as audited by the BSI. As a people service and a technology-based enterprise, ISO9001 and ISO27001 certification adequately cover all key activities with significant overlap. Resilience is achieved by designing flexible architecture for both internal operations and for clients, a portable yet security hardened infrastructure is used that is cross-cloud compatible. Most infrastructure is developed to defined in software to maximize this resilience. For OBU the use of cloud hosting provides a highly resilient IAM solution that will be maintained through frequent back-ups, mirroring and regularly tested BCDR that has already been battle-tested. Texuna provides performance, smoke, penetration and disaster recovery testing to ensure the resilience of all deliverables. Lastly, multi-location offices and support for home/remote working mean no single vulnerability exists that presents an unacceptable risk. **Business Continuity Recovery** Texuna's approach mirrors the public cloud philosophy of disposable services. Cloud infrastructure and services are "throw-away" and easy to restart to minimize operational impact. Texuna's multi-site business means alternate, cross-trained personnel are available to resume services throughout a recovery. Texuna's multi-cloud expertise allows us to deliver quasi-automated recovery to any other cloud. Our solution is comprehensive: * Terraform scripts describe cluster infrastructure as software, enabling quick and seamless recovery and re-deployment. * IAM cluster can replicate all data across multiple nodes, continuously backing up data snapshots to Blob/object storage. Any existing snapshot can automatically restore the solution. * Texuna IAM Server virtual machines use Disk/Block Storage volumes for data with backup to Blob/Object storage. Ansible configuration ensures all server and application services work as expected if the system is recovered. * PostgreSQL servers use a multi-zone highly available configuration in Production for data. Development and UAT environments use snapshots and daily historical backups. The daily logical backups (SQL dumps) are saved using temporary isolated and encrypted virtual machine instances, running through the AWS Lambda service. * If so desired the entire cluster infrastructure can be deployed as Docker containers on Kubernetes for a robust scalable easy-to-manage service that is cloud portable. * Historical backups are eventually transitioned to the cheap, secure and robust Glacier/Azure Backup solution to give multi-year cover. **Business Continuity Contingency** Texuna's impact analysis on risks and contingency planning has multiple layers that encompass technology/infrastructure, services, offices and personnel. Personnel: sophisticated recruitment, remuneration, education/training, personal development plans and performance management are put in place. Non-core roles can be outsourced if required. Services/offices: As a multi-site operation, extensive contingencies are designed into operational protocols. Should one location experience a business continuity event, contingencies are in place that allows for the other Texuna locations to seamlessly provide uptake of all services (periodically tested). Texuna also allow for home working and frequently work onsite with clients, also demonstrating Texuna's ability to work from anywhere. Texuna's secure cloud-hosted project management/CRM systems allow project teams to access communications and configuration items, allowing all staff to work from anywhere, with negligible impact. Technology/Infrastructure: Texuna's entire infrastructure is portable and adaptable to any cloud using Terraform & Ansible provisioning tools to safely and predictably make changes to infrastructure. In the last 12 months, the ability to move Texuna's and client resources between onsite, in-house, AWS and Azure environments has been tested successfully. This gives multiple contingency options.	
OBU		IAM	The University is seeking to replace the current system that creates email aliases for staff, students, and groups (please refer to Appendix 1 for more information). Please can you provide information on how your proposed solution can support the University with email alias creation and management?	Texuna IAM can be adapted to the existing email alias creation mechanism (aliases are provided from the source database and flat files) or can encapsulate logic for generating those aliases by itself according to a pre-defined algorithm. In the latter scenario, our solution will trigger an automated process to generate the aliases and assign them to users or groups inside our identity database. The uniqueness of the email alias must be ensured by the algorithm. Our solution can also provide an ability for user/admin to set/update the alias for a chosen user or group manually via an API and/or UI. In both cases, the provisioning mechanism will be automatically invoked and the email alias will be written into the LDAP database under a specific attribute name.	

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Department of Agriculture		IAM	Assurance regarding vendor viability and future roadmap	Texuna have been operating a clustered high availability IAM for Department for Education in UK for 6+ years on a bespoke basis. The core service is currently delivered on AWS and has the previous run on the private cloud (VMWare at Eduserve) and in-house at Texuna (bare metal). Texuna has set out an independent roadmap for the IAM service and has provided all the latest open source integrations required for compliance with latest industry standards in IAM. This includes successful implementation of Fido2.0 (WebAuthn / CTAP), OIDC, and Shibboleth / SAML3.0 standards. In particular, work is currently underway to extend backend APIs to integrate with independently deployed Single Page Application to give more flexibility to clients on how Texuna IAM can be put into use and deployed. Going forward, Texuna are committed to further developing our IAM solution as a dedicated service for the public sector. We will automatically adopt any new internationally published and accepted open identity standards. We will be able to leverage our existing investments in data warehousing and data integration tools to deliver into an integrated enterprise architecture based on APIs and open standards. Texuna are also committed to the idea of self-sovereign identity for user self-management, and by extension to the decentralised management of identity and credentials through technologies such as blockchain and U2F. We have launched an internal project around identity ownership and cultivation called Field-ID and looking to expand our efforts in the space by integrating with IPFS for self-storage of personal data and blockchain for establishing identities. We are actively considering membership of the Decentralised Identity Foundation and have done extensive research around Sovrin and uPort in particular which we will continue to build into our Research and Development projects.	
Department of Agriculture		IAM	Evidence for compliance with data protection regulations and standards	Texuna aligns information security to our corporate strategy giving it a top priority. Texuna is registered with the Information Commissioner as a data controller and is certified under the ISO27001 standard by the British Standards Institute (BSI) across all office locations. BSI audits our controls including data security and system integrity. We are also certified under UK CyberEssentials. We follow OSWAP best practices, and Texuna IAM has been independently penetration tested on several occasions, most recently in 2018. We go to great lengths to give assurance that we have taken all precautions necessary to deliver a secure IAM solution according to client needs. Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: * avoid highly bespoke permissions on low-level granularity (simplicity facilitates better management) * encrypt or hash sensitive data where privacy is required * separate the management of user mapping to groups from the management of access permissions with groups * integrate to existing enterprise IAM if available (e.g. Active Directory) * secure private data through restricted database views for Business Intelligence tools. Permissions are flexible and apply at multiple levels. For example, personal data can be can be restricted only to user groups with a 'need-to-know'. Restrictions can be applied at multiple levels and we will work with the Department to define access roles and groups. The management and migration of historical data from the legacy system require special attention. Texuna's data warehousing and ETL experience ensure the highest level of protections are used during initial classification and migration. Secure ETL scripts will create a customised set of processes to migrate and, if necessary, cleanse the data. Data upload to the cloud hosting environment will be configured so that it is secure and a potential way to accomplish this is to configure a direct connection ie a database access login to enable VPN connection between the current source and the cloud hosting environment.	

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Department of Agriculture		IAM	Level of expertise to be provided by Tenderer in the area of IAM solution implementation (example CVs may be referenced)	Texuna has provided bespoke solutions based on open source software to deliver innovative IAM and meet business needs for over 10 years. We have delivered IAM for in-house services across an international commercial organisation with dozens of offices as well as for the Department for Education (DfE) and Jisc. These services are in active use to control end-user access and authentication today to cloud-hosted an in-house on-premises systems. We have also invested in and given tech support to several edtech startups, including MOOC Alison.com with over 10 million learners and Edukit.org.uk which supports hundreds of schools. We have also supported Manchester startup Shout-app.com (location-based services) and international commercial organisation. For the Jisc (equivalent to HEA) we implemented a warehouse with mobile-ready members portal for hundreds of universities to access their membership data across all Jisc services. Our projects have demonstrated deep understanding of integration of components in identity solutions, as well as integrating with existing legacy services such as Microsoft Active Directory and OpenLDAP as well as modern standards such as OAuth and OIDC. We can demonstrate our willingness and ability to roll out sophisticated, bespoke systems that meet very specific business needs. We are looking to a passwordless future through the support of self-sovereign identity and Fido2.0/WebAuthn which is now supported by the major browsers and Operating Systems. Our R&D is also focused on blockchain identity options like Civic and uPort. Texuna IAM can be implemented either as an integral component within a solution, or as a separate application to manage access to portfolios of applications and services. It has been developed based on industry standards. Texuna deal with Identity lifecycle management but also access management through groups and permissions features, and data exchange between trusted service providers. Use a disciplined agile delivery methodology and leverage our data warehouse and ETL expertise to give high-level assurance on identity data cleansing and integration. Communication of sensitive data is assured via secure SAML assertions, SOAP and RESTful based web-services are utilised and secured via certificate exchange. Traffic between the link endpoints (Texuna IAM and an Application Web Service) is encrypted as part of the communication sessions established before messages are transferred. SSL support alongside other protocols (e.g. Transport Layer Security v1 and above). We have already provided brief details of our current client systems in relevant experience section of this proposal. Texuna's Secure Access solution for DfE provides a public gateway to over a dozen legacy systems behind their departmental firewall. This integrated system was rolled out to all users as a greenfield project, and now provides over 300,000 successful logins a month. It has already been tested to support a million users with a throughput of approx 100,000 logins per hour.	

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Department of Agriculture		IAM	General architecture description and technical details in overview (loosely coupled, light, flexible, etc.)	Texuna's IAM is a cloud portable set of microservices built on top of open source libraries that support open standards. It can be run inhouse on bare metal, on virtualised environments, or it can also consume commoditised cloud services for maximum robustness and cost control. The services are deployed as self contained nodes that can be simply orchestrated as a cluster for maximum robustness and scalability. The software can also be deployed in containters so that diffferent components of the service can be scaled independently. The solution adheres to the RESTful statelessness constraint in order to maximise visibility, readability and scalability. Each request from client to server contains all of the information necessary to understand the request, and does not take advantage of any stored context on the server. Session state is kept entirely on the client. These services are functionally independent. Asynchronous message-based pub-sub communication patterns are used where possible. As all components in the system are implemented as stateless REST API services, they support horizontal scaling. Components can also be packaged in containers and scaled independently across a kubernetes platform. Alternatively autoscaling can be arranged, or pre-arranged scale up can be done manually. We have successfully migrated a live service between cloud providers and also swapped integrated services and network settings during live operations without loss of service. Service providers can use our built-in tools to check their SAML message exchanges and do their own debugging against the working solution. To avoid periods of inactivity during upgrades and planned maintenance, critical parts of the system are deployed using a zero-downtime paradigm. The API is designed and developed to support backwards-compatibility and blue-green deployment techniques. The solution contains several separate microservices each addressing separate concerns and performing their own well-defined function. In addition to the main web application API through which all management/administration functions are performed, the following loosely coupled components are included: user self-service; provisioning processor; audit collector service; reporting service(s). These endpoints are separated by service (which has a specific area of responsibility) and within one service each endpoint belongs to a specific category which can have subcategories. Following separate services exist: - main management/administrator (to read/write current configuration of all aspects in IAM) - user self service (collection of APIs for user to view/edit own account, change password and so on) - provisioning processor (Waveset replacement reading from sources and provisioning changes to integrated systems) - audit collector service (all possible audit data collected in asynchronous manner) - reporting service (generating reports, custom exports for analysis etc.) - possibly several of them targeting different datasets according to concrete needs. Texuna uses tools like Swagger/SwaggerUI for automatic documentation and visualisation of the current working API. Each endpoint is comprehensively documented using standard rules in a very user-friendly form. The entire REST service is described in YAML or JSON format. The support of various open standards greatly simplifies the challenge and makes it easy to create a centralised service for authentication with authorisation for patrolling Role-Based Access Control. This includes the use of Shibboleth for Single Sign-On. Texuna's IAM fully supports granular Role Based Access Control while allowing business rules and permissions mapping to simplify access management across a large enterprise portfolio of cloud, in-house and proprietary systems and legacy applications. The solution was designed to deal with the problem of integrating a large array of heterogeneous methods of provisioning and controlling user access and providing Single Sign-On. We provide a sophisticated, flexible database schema with mapping tools to allow granular permissions and user roles from a variety of 3rd party systems and legacy solutions to be mapped to our IAM service, leveraging User Groups, Account Types and User Organisations to facilitate sophisticated business rules to orchestrate and access data and application services across the lifecycle of provisioning and de-provisioning. Texuna IAM provides a powerful and customisable processing behaviour/workflow for different types of users, including account suspensions. Once a user record passes eligibilty checks, then the provisioning component will synchronise/provision the account into the required external systems (in case of update, the provisioning service can additionally deprovision the given user record from other systems the user was removed from - all based on configurable provisioning workflow rules).	
Department of Agriculture		IAM	Can solution can be deployed "on premise"?	The platform can be deployed on any public or private cloud or on in-house infrastructure. Texuna will provide a temporary online link with the self-installing IAM with comprehensive guidance. Self-installing RPM packages and Docker containers are provided for this purpose. This makes it quick and easy to deploy and maintain multiple IAM servers as virtual machines on the host server. The system will automatically find parallel installations to create a high availability, load-balanced, scalable cluster. Each RPM package is installed as a single node that includes the application server and a database server, and can be configured to be one, the other or both. This means customers only need to provision a physical or virtual machine for IAM to run out of the box, removing all infrastructure environment (OS, web-servers etc.) setup and configuration effort. After installation is complete an administrative account allows the customer to undertake user and integration configuration via an intuitive user interface. Guidance for the process of initial configuration, application integration, user import and launch is provided.	

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Department of Agriculture		IAM	Describe the extent of API, application and RESTful services support	Texuna IAM provides industry standard and SCIM-compliant rest-API out-of-the-box. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems. Our Provisioning Service has its own API and UI which can be used to import data from external SSO IdP (e.g. the existing Department Oracle-based SSO) or initiate user provisioning/update/de-provisioning in external systems. Provisioning logic can be configured for each external resource and can support significantly different expected behaviours. Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Connectors for synchronising to Oracle databases, clouds, LDAP and ActiveDirectory exist out-of-the-box and can be customised for any specific use-case as needed. All connectors are configured within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself. Provisioning to Linux (i.e. management of user accounts, ssh keys etc.) and database tables are also supported. Using UNIX bundle connector within our standard provisioning framework, it's possible to manage external Linux machines via a provisioning service, i.e. do 'provisioning to Linux'. The following actions can be implemented and customised: - User management – create, update, delete user, enable/disable user, enable/disable user password - Password management – set password, change password, enforce password policy, enable/disable password - Public keys management – provision different public keys to the ~/.ssh/authorised_keys - Group management – create, update, delete group - Managing sudoers files for users and groups – give permissions either for group or user which will be transformed to the sudoers file - Group membership management – add/remove user to/from group	
Department of Agriculture		IAM	User story 2 response and detail; demonstrate the lifecycle of authorisation support for services/APIs [7]	UserA, already having an account, access the SSO portal. On login, the portal already knows what applications the user has permissions for; the permissions were set via group access rules in the system and the appropriate groups are displayed. The user clicks on the Maps application which triggers a valid login message with the user's details being sent to the Maps application. The user then enters a business customer number, which triggers a number of RESTful calls to the Customer System and Payment Service. Valid information is displayed to the user, based on their underlying permissions. Because the valid sign-on for the user was provided to the Maps application, the Maps application is able to write to the logs that the user accessed the data for the business in question. In addition to this, the details provided from the SSO application to the Maps application includes details on the permissions the user has for other systems. As a result, when the Maps application calls the Payment service which in turn calls the Claims service, the user's permissions are propagated on each step. The Claims service recognises that this user does not have the appropriate permissions, returning an alert to the Maps application to prevent invalid data from being displayed. When the user decides to log out of the Maps application their main SSO application session remains valid, and they are returned to the main SSO application screen. This ensures that any other sessions the user may have with other linked applications are not affected when the user logs out. Underling authenticatin and authorisation worlflow is like: 1. User logins to Maps application and authenticated through SAML2 protocol. 2. Maps application requests an access token from the authorization server. The access token request contains the following: 2.1. OAuth 2.0 client ID 2.2. SAML 2.0 bearer assertion received from the identity provider 2.3. List of OAuth 2.0 scopes for the requested resources: Customer System and Payment Service 3. In exchange for the SAML 2.0 bearer assertion, the authorization server issues an OAuth 2.0 access token after having checked the client credentials, the trust relationship with the SAML 2.0 identity provider, and the authorization of the client and the resource owner for the requested scopes. The server response contains the following elements: 3.1 Access token 3.2 List of granted OAuth 2.0 scopes for Customer System and Payment Service. This list may contain less entries if the OAuth 2.0 client or the resource owner is not allowed to access the full list of requested scopes. 3.3 Lifetime of the access token 4. The authorization server stores the client ID, the resource owner, and the granted scopes in the internal OAuth 2.0 server context store. 5. To access a Customer System and Payment Service, the Map application embeds the access token into an authorization header and forwards it with the resource request to Customer System and Payment Service servers. 7. Customer System and Payment Service servers grant access to the requested resource if it is covered by one of the scopes assigned to the access token. 8. User is not authorised to use Claims service, so access will be rejected because access token achieved through SAML 2.0 Bearer Assertion Flow for OAuth 2.0 is not allowed for this OAuth2 scope.	

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Department of Agriculture		IAM	Demonstrate, with examples, solution is "Extensible"	Built using open source technologies, IAM has been packaged by Texuna into a secure, robust and scalable (clustered) enterprise-level application, using industry standard protocols and open standards such as SAML via Shibboleth, OpenLDAP, Active Directory, OAuth, SCIM and SPML. Texuna's IAM is a cloud agnostic service, operable on-premise or within a public, private or hybrid cloud environment that can scale to tens of millions of users. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems.

Texuna has a strong track record of developing scalable high availability solutions. As our solutions grow and as demand increases, system resources may be incrementally added to maintain good response times. For example, our Identity Access Management platform has been configured and deployed as DfE Secure Access and integrated with eleven legacy DfE systems. At Go-Live, three services were integrated; today the number of distinct services has more than doubled with no adverse impact. The high availability configuration also allows the service to be tolerant of any failure in frontend or backend services.

Texuna's longest established client, the NCTL (now DfE) ITTDMS solution is an example of Texuna's robust enterprise-level component-based solution that has grown, expanded and changed over more than 15 years to meet changing government policy and data management demands. Originally a single annual data collection for teacher training with associated reporting, ITTDMS has grown into an enterprise data warehouse that manages more than 20 disparate datasets across more than 10 annual data collections, supporting 14 different user access portals.

Texuna IAM supports a flexible data model and rules engine for the ability to add new identity attributes over time, with the ability to use SAML as an attribute distribution hub for specific integrated systems. This means new data can be captured over time, and rules put in place to share new data to different targets based on changing needs over time. We have used this functionality extensively with DfE as legacy systems changed and migrated from different suppliers and as new systems onboarded demanded different data attributes. Furthermore, we provided the flexibility to allow different legacy systems to each decide how much control over Access Management was relinquished to the IAM and how much was retained by the legacy system on a case by case basis. This demonstrates no only extensibility but the flexibility required to deal with real-world limitations where they exist. | |
| Department of Agriculture | | IAM | Substantiate claims for scalability of solution | No matter the size of the user base, Texuna IAM is a highly scalable solution with the ability to facilitate a variety of needs in authentication. Texuna IAM is designed around the concept of self-sufficient nodes that can be added to a cluster at short notice. THis allows us to permit scaling up by increasing the number of (virtual) machines used in the installation. Each node is self-contained and cluster-aware, making it easy to deploy and launch. Each node can be configured to launch either as an IAM, a database or both. This gives options to focus on newly deployed nodes in different ways depending on the bottleneck to be scaled.

Texuna's clustered machine approach ensuring high availability and reliability of the application. If high availability and high performance are not issues, it is perfectly feasible to deploy a single-node IAM option. Texuna recommend a clustered approach for high load environments for the following reasons:

*Capacity:
 - The more machines running Identity Assurance and Access Management, the more simultaneous users it can support with low latency;
 - Scalability of data exchange will be limited with a single machine configuration.
*Maintenance of performance under load:
 - Spikes in user authentication activity can cause drops in performance;
 - Clustered systems are able to balance the load across the multiple machines.
*Resilience:
 - Identity Assurance and Access Management is built from several core components. Clustering duplicates components over multiple machines;
 - A hardware failure on one machine does not impact service availability since other machines automatically assume its responsibilities.
*Availability:
 - High availability is expected of organisations' core services;
 - A clustered system is more likely to be accessible and operable;
 - The SaaS cluster has 99.9% uptime guaranteed by service-level agreement. versus 99% for a comparable non-clustered package. In practice, Texuna IAM has achieved greater than 99.999% uptime on AWS as SaaS.

A single-machine installation does not preclude opportunities to upgrade to a clustered approach at a later date as the service can be purchased on a per-node basis. Texuna have demonstrated support for more than 100 thousand logins per hour through a simulated performance load testing that demonstrates almost linear scalability as nodes are added to the solution. | |

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	Sector	Solution	Question	Template Response	Picture number
Department of Agriculture		IAM	Are token introspection, stateful and stateless tokens supported?	Texuna IAM supports an authentication endpoint that is compliant with the Token Introspection extension of the OAuth 2.0 protocol. The Endpoint returns information about an access token, intended to be used by resource servers or other internal servers. Token introspection is performed through a secured channel. (see https://tools.ietf.org/html/rfc7662 for specification details) Texuna IAM supports stateless and stateful tokens through the JSON Web Token (JWT), along with the JSON Web Signature (JWS) and JSON Web Encryption (JWE) specifications. The Token Introspection Endpoint responds with a JSON object confirming that the token is "active" and providing additional information. Some of the properties in the Introspection spec are specifically for JWT tokens. You can also add additional properties in the response if you have additional information about a token that may be useful. A typical JWT is composed of three parts: - Header: a small JSON object describing the algorithm and the type of JWT in question. - Payload: the actual usable data, a JSON object of arbitrary content (although some fields are defined by the JWT spec). - Signature: which makes a JWT safe to use: both the header and the data can be validated against tampering through signature checks.	
Department of Agriculture		IAM	Evidence that the highest available mobile device security standards are to be provided	Texuna aligns information security to our corporate strategy giving it a top priority. Texuna is a registered data controller and is certified under the ISO27001 standard by British Standards Institute, and certified for U.K. CyberEssentials. We follow OSWAP best practices, and Texuna IAM has been independently penetration tested on several occassions, most recently in 2018 by Capita. We go to great lengths to give assurance that we have taken all precautions necessary to deliver a secure IAM solution according to client needs. Texuna view the threat of hacking and DDOS as key issues and challenges to any enterprise IAM, and believe every organisation needs to be prepared to respond to actual breaches rather assuming the necessary arrangements are in place to avoid a breach. Our plans provide for maximising lessons learned from the National Cyber Security Centre, OWASP Top 10, CVE (Common Vulnerabilities and Exposures) who have successfully handled a number of attacks and breaches or reviewed and given guidance on the most effective corrective and preventative actions. Risk mitigation and incident management processes need to be understood and in place. GDPR furthermore outlines obligations on what data should be kept, how it should be processed and secured, and what should not happen. Texuna have taken all this onboard our approach to security. Safeguarding issues / data protection: Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to make TexunaIAM secure and to safeguard sensitive data under GDPR obligations. The following mechanisms are minimum: *Secure hosting *Secure and robust database design and software architecture. The solution is subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition: - All data transmitted between the mobile client and the server via encrypted channel (SSLv3) - JSON Web Token (JWT), along with the JSON Web Signature (JWS) and JSON Web Encryption (JWE) specifications - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply: ** encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256 *A least-privileged Access Control policy; *Strong password policy with the ability for users to change password if needed. * Step-up authentication with MFA/U2F for power users. Texuna system design defaults to "nothing-accessible and everything auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: * avoid highly bespoke permissions on low-level granularity (simplicity facilitates better management) * encrypt or hash sensitive data where privacy is required * separate the management of user mapping to groups from the management of access permissions with groups Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported. GDPR provides a good approach to understanding our obligations to users - and what to do when security incidents and breaches arise. Cloud security best practices mirror many of the same principles around accessibility, encryption, and secure network architecture. Best practices in MFA are reducing the vulnerabilities associated with the centrally stored password (or its elimination in the case of Fido/U2F). Weblog and Syslog streaming to independent analysis servers that are forensically secure ensure that incidents can be monitored and investigated without loss of evidence by advanced adversaries. Regular OWASP-approved testing and independent pentests assure our IAM are fit-for-purpose and our development practices are security aware. We also work to ensure we are aware of Zero Day Vulnerabilities, and as a heavy user of Open Source Software, we continuously monitor critical patch updates from the vendor and community sources to plan and inform our regular and ad hoc maintenance programme.	

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Department of Agriculture		IAM	User story 1 response and detail [8]	The farmer downloads the app from the app store of their choice (Google Play or Apple). They are presented with a login screen, they use the information of their main SSO account to access the app. The app, recognising that this is the user's first login to the app, will prompt the user to record a 4 digit PIN. This PIN is stored against the user's account, local to the phone used. This PIN will allow the user to access the application as often as they wish, they will not need to re-enter their main SSO account credentials.

At this stage IAM system issues Refresh and Access token. Access token will be used by application when request is sent to service provider application. Access token is short live period token. IAM may be configured to use one-time use access token with short live time but it increase burden on mobile app developers and service provider applications developers. Refresh token is stored on mobile phone in secured storage that is accessible only if PIN entered correctly. Refresh token is used to get new access token and send request to service provider application.

Once the PIN has been set the user can access their account on their device, regardless of their connectivity, the PIN being stored locally. Should the user access their account while offline then they can use their PIN and access information as per the most recent period that the device was connected. If the user's account is locked while their device is offline they will still be able to access their account on their device, this access will only be possible until their device reconnects with the network. At this point, the user will lose access until they follow the self-service approach to unlock account.

If the user attempts to access their account using the app on a different device (e.g. different phone or tablet) then they will be given the option to set a PIN on that device as well
(the PIN is tied to the device).

The admin user can set a period of how frequently the user must re-enter their full SSO credentials. The user will be prompted to re-enter their full details the next time they log into the application on their device after this period of time has expired. The user's PIN is unchanged as part of this process, and all subsequent logins (until the next timeout period) only need the PIN to access.

At this stage, IAM solution reauthenticates user and issue a new pair of regresh and access token. It is worth to note that IAM administrators or user itself in case of emergency may invalidate tokens through IAM administration portal or self-service portal thus forcing mobile application to request login/password once application is run on device. It is very important for lost device cases when person who finds mobile device won't be able to access application data even if PIN guessed. | |
| Department of Agriculture | | IAM | Are mechanisms for token translation, transformation, exchange or credential mapping supported? | Texuna IAM supports SAML 2.0 Bearer Assertion Flow for OAuth 2.0 granting developers with great secure, flexible and easy to use approach to develop solutions based on service-oriented architecture.

While JWTs can do some of the things SAML assertions do, JWTs are not intended as a full replacement for SAML assertions, but rather as a token format to be used when ease of implementation or compactness are considerations.

1. The OAuth 2.0 client gets a SAML 2.0 bearer assertion from the SAML 2.0 identity provider. The assertion contains the user information of the resource owner and has a digital signature from the identity provider.
2. The cloud or Web-based application requests an access token from the authorization server. The access token request contains the following:
2.1. OAuth 2.0 client ID
2.2. SAML 2.0 bearer assertion received from the identity provider
2.3. List of OAuth 2.0 scopes for the requested resources
3. In exchange for the SAML 2.0 bearer assertion, the authorization server issues an OAuth 2.0 access token after having checked the client credentials, the trust relationship with the SAML 2.0 identity provider, and the authorization of the client and the resource owner for the requested scopes. The server response contains the following elements:
3.1 Access token
3.2 List of granted OAuth 2.0 scopes for the requested resources. This list may contain less entries if the OAuth 2.0 client or the resource owner is not allowed to access the full list of requested scopes.
3.3 Lifetime of the access token
4. The authorization server stores the client ID, the resource owner, and the granted scopes in the internal OAuth 2.0 server context store.
5. To access a requested resource, the client embeds the access token into an authorization header and forwards it with the resource request to the resource server.
6. The resource server checks the following:
6.1 OAuth 2.0 client ID
6.2 Scope assigned to the OAuth 2.0 client
6.3 Validity of the access token
6.4 Lifetime of the access token
6.5 Scope covered by the access token
6.6 Validity of the SAML 2.0 bearer assertion in the OAuth 2.0 server context store
6.7 Authorization for the scopes make available by the resource owner
7. The resource server grants access to the requested resource if it is covered by one of the scopes assigned to the access token. | |

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	Sector	Solution	Question	Template Response	Picture number
Department of Agriculture		IAM	Description and details of the available/typical user interfaces or options; indicators of an effective and "friendly" user experience	The solution is a very user-friendly system with an intuitive user interface. Each implementation is designed according to industry best practices for user interface design. The solution UI may be updated collaboratively with Departmental stakeholders to ensure that there is a focus on usability at the front end. Intuitive design is paramount to minimise help and training needs while ensuring the requirements are met. Simplicity and straightforwardness are key. Our client's design standards and style (existing CSS) are utilised where available or modified so that it is suitable. Texuna will deliver a configured solution to the exact needs of the Department of Agriculture and integrated a number of distinct Department's systems based on differing technology. A highly bespoke service will, therefore, be available to meet all current needs, with the flexibility to incorporate future needs easily. Our approach is to adopt standard components and libraries to enable us to deliver high quality, flexible and user-friendly enterprise level solutions for our clients in aggressive timelines. Texuna IAM provides several options for authentication and improved single-sign-on user experience. First, it can be fully adapted to existing external SSO solution deployed in the organisation. It's possible to have an external Shibboleth system acting as SSO for various systems in the Department. In this case, our solution would give user a link and navigate a user for authentication to this external Shibboleth system. After successful authentication, SAML 2.0 assertion would be received by our OAuth 2.0 server provider (included in Texuna IAM solution) which would provide authorisation tokens giving user access to Texuna IAM's services and endpoints, including mobile application. Secondly, other options exist for user authentication (while preserving the whole OAuth 2.0 authorisation process described previously). Texuna IAM OAuth 2.0 server can be configured to use its own internal authentication service based on the OIDC standard (instead of Shibboleth). This service provides its own login page, or allows code snippets to be embedded in a 3rd party tool, application or portal so that no new steps need to be visible to the end-user. If the Department should need a dedicated app to be set up, Texuna IAM will provide Restful API endpoints to support a Single Page Application that can be independently and highly customised.	
Department of Agriculture		IAM	Evidence of account management and self service functions within solution that improve the customer experience and potentially reduce Department administration overheads	Texuna's IAM approach to application access management is to centralise permissions in a single location, ensuring ease of use for application support and IT service desk staff. Texuna's IAM allows the creation of groups governing access to applications. Users are associated with groups via highly flexible administrator-defined rules that grant application access based on the attributes of the user and/or their associated organisation. Furthermore, IAM allows the creation of sub-groups for each application, replicating an application's granular permission structure and thereby enabling the control of both access and authorisation from a single location. Texuna IAM provides the concept of 'organisations' which are hierarchy units reflecting line management structures or directorates or customers. Approval processes and responsible persons may be configured independently for each 'organisation' and approval functions may be delegated to responsible personnel. Texuna IAM has a flexible management component for role based access control and approvals process. DfE SA IAM had first line support team of 2 operators that managed 100,000 users across sector using flexible delegation rules. Texuna's IAM also supports a hierarchy of user types, facilitating the inheritance of permission and control over access management. This allows the delegation of permission and access management to appropriately authorised users. Texuna is a keen advocate of self-service and self-help. We design our solutions around the evidence of users real needs and expectations. We provide clear, unambiguous, easy to understand GDS-compliant screen dialogue that has been tested with users and adjusted based on any feedback received. Self-help and guidance will be built in to allow all users to get the most out of the service in any scenario and will be context sensitive. Texuna has experience of providing all the identified types of self-service documentation and help that has been specified and we will include this as a minimum in our implementation. We will work closely both with the Department and with users through Discovery and iterative evaluation to test designed content to improve the quality of the self-help provided as well as the range and coverage of the self-help. The needs of all the user personas will be considered when designing the help features of the system, including support for atypical scenarios.	
Department of Agriculture		IAM	Can data aggregation for policy decisions be implemented, e.g. different authorisation sources merged in to one policy application	Texuna IAM provides industry standard and SCIM-compliant rest-API out-of-the-box. Texuna IAM does not limit number of sources for user roles and permissions import. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems. Our Provisioning Service can be used to import data from external SSO IdP (e.g. the existing Department Oracle-based SSO) and other sources and then initiate user provisioning/update/de-provisioning in external systems. Provisioning logic can be configured for each external resource and can support significantly different expected behaviours. Actual merge requirements should be reviewed during Discovery phase and properly configured to avoid possible conflicts, reconcilitation strategies may be developed as add-ons. Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Connectors for synchronising to Oracle databases, clouds, LDAP and ActiveDirectory exist out-of-the-box and can be customised for any specific use-case as needed. All connectors are configured within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself.	

	Sector	Solution	Question	Template Response	Picture number
Intro				Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.	
Department of Agriculture		IAM	Demonstrate support for common data stores	Texuna IAM has built-in provisioning component based that provides support for common data stores like: - DatabaseTable Connector (JDBC) - LDAP Connector - Active Directory Connector (LDAP) - SCIM v1 generic connector - SOAP connector - Office365 - Google Apps - SAP Connector - CSV Connector Texuna IAM provides industry standard and SCIM-compliant rest-API out-of-the-box. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems. Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Connectors for synchronising to Oracle databases, clouds, LDAP and ActiveDirectory exist out-of-the-box and can be customised for any specific use-case as needed. All connectors are configured within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself.	
Department of Agriculture		IAM	Can the solution integrate with Microsoft Dynamics CRM?	Texuna IAM provides a high level of flexibility in the methods and options available for integration so that the Department source systems can be integrated fully and to the best capability of the system. Texuna IAM provides connectors out-of-the-box for the provisioning of identities and access permissions to Azure cloud if Microsoft Dynamics is rolled out in the cloud. Texuna IAM integrates with Microsoft Dynamics CRM and serves as IdP through built-in Shibboleth Identity Provider component. SAML-based IdP support is built into Microsoft Dynamics CRM. Generic data database connector component will be used to import data from external SSO IdP (existing Department Oracle-based SSO) and authenticate users into Microsoft Dynamics CRM through SAML2 or initiate user provisioning/update/de-provisioning into external systems. Provisioning logic can be configured per each external resource and such logic can seriously differ. Texuna IAM provides industry standard and SCIM-compliant rest-API out-of-the-box. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems. Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Connectors for synchronising to Oracle databases, clouds, LDAP and ActiveDirectory exist out-of-the-box and can be customised for any specific use-case as needed. All connectors are configured within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself.	
Department of Agriculture		IAM	Demonstrate that the Department's existing identity store (on Oracle 12c tables) can viably be re-used within the provided solution, i.e. re-use existing identity, roles and authorisation data	Texuna IAM provides a high level of flexibility in the methods and options available for integration so that the Department source systems can be integrated fully and to the best capability of the system. Texuna IAM provides connectors out-of-the-box which can be used to import data from external SSO IdPб existing Department Oracle-based SSO. Texuna will ensure existing SSO solution tables stored in Oracle Database will be re-used (existing identity, roles and authorisation data). This will not have any impact on the existing SSO solution. Imported users, roles and authorisation data will be used to authenticate users into Microsoft Dynamics CRM through SAML2 or initiate user provisioning/update/de-provisioning into external systems. Provisioning logic can be configured per each external resource and can be as sophisticated as necessary. Texuna IAM provides industry standard and SCIM-compliant rest-API out-of-the-box. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems. Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Connectors for synchronising to Oracle databases, clouds, LDAP and ActiveDirectory exist out-of-the-box and can be customised for any specific use-case as needed. All connectors are configured within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself.	

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Department of Agriculture		IAM	Describe a path, if available, to migrate Department Enterprise Applications, that use the existing SSO solution, toward the new IAM solution	Texuna IAM supports various open standards and greatly simplifies the challenge and makes it easy to create a centralised service for authentication. It also simplifies migration for existing solutions and provides maximum flexibility with different migration strategies. Using a centralised Texuna IAM eliminates the need to have specialist open-source technicians or authentication security experts on site, yet avoids the huge expense of bespoke IdM systems. Once installed, Department application developers, suppliers and SaaS partners have the option to use the SAML2 or OAuth2.0 web standards to authenticate users into your applications and services through the Texuna IAM. SAML2.0 is the most widely adopted existing SSO standard. SAML is natively supported by Google Apps, Dropbox and Office 365. Integration with social networks is achieved via OAuth2.0 as defined by Open ID Connect standard. Support is also available for U2F / UFA with CTAP and WebAuthn. Users log in with a single set of credentials for authentication and are automatically logged into all applications to which they have been granted access. Texuna's IAM user and group management interfaces give administrative users full control over application access management with granular level permissions. Texuna also supports OpenLDAP integration to work with legacy web applications, and has an LDAP based integration with Microsoft Active Directory to allow identity management data synchronisation. Texuna IAM provides a high level of flexibility in the methods and options available for integration so that the Department systems can be integrated fully and to the best capability of the system. Texuna IAM provides connectors out-of-the-box which can be used to import data from external SSO IdP existing Department Oracle-based SSO. Existing SSO solution tables that are stored in Oracle will be re-used (existing identity, roles and authorisation data) without impacting the existing SSO solution. Imported users, roles and authorisation data will be used to authenticate users into Microsoft Dynamics CRM through SAML2 or initiate user provisioning/update/de-provisioning into other external systems with configurable provisioning logic. Firstly, each existing system can be re-directed one-by-one to the Texuna IAM through OAuth2 and SAML2 protocols for SSO. Applications may use these endpoints to give end users a seamless experience while replacing the existing SSO server given that user IAM data is imported into Texuna IAM. A second strategy for migration is to provision existing IAM data into existing systems. Texuna IAM provides industry standard and SCIM-compliant rest-API out-of-the-box. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems. Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Connectors for synchronising to Oracle databases, clouds, LDAP and ActiveDirectory exist out-of-the-box and can be customised for any specific use-case as needed. All connectors are configured within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself.	

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	Sector	Solution	Question	Template Response	Picture number
Department of Agriculture		IAM	Provide an outline plan for on premise implementation of solution, likely timeline and personnel required, possible obstacles and target milestones (e.g. earliest possible uses)	Texuna will staff and support Department of Agriculture in implementing its Identity Access Management solution wholly with full-time permanent Texuna staff for the project duration and beyond. The project will be managed from the Texuna Cork office and led by the most experienced staff, who have already successfully delivered similar Identity Access Management solutions. It is expected that this team will be based both at Texuna offices and collocated at Department working in an agile collaboration.

Texuna manages projects using Prince2 methodology and employing an agile delivery approach to the configuration and commissioning of deployed solutions. These tools and techniques, together with our focus on transparency and our partnership approach with our clients, have enabled us to successfully deliver on time and budget. Texuna's agile methodology promotes a modus operandi to deliver frequent incremental releases. This engages customer early on and offers the flexibility to amend and change the detailed functions supported as the business requirements develop over time.

Texuna expects collaboration with Department "knowledge holders" through business analysis. Texuna will review and analyse the business requirements and prepare the Delivery roadmap. Texuna will help the Department's IT team both to understand the required solution and also to conduct support and maintenance of solution and infrastructure.

A Skillsets matrix:
Business analyst: Understanding of Department data protection rules, access permissions policies and user management process as-is. Understanding of current user registries and data structure.
Solution administrator: Understanding of Department data protection rules, access permissions policies. Texuna will train solution administrators as part of project delivery.
System administrator: Understanding of cloud hosting principles, experience with Azure or AWS is a bonus.

Resource will be allocated to delivery streams ensuring that at least one member of Texuna and Department staff of the same role participate in delivery.

Texuna's existing authentication platform is already available and in use in a number of projects. Current functionality on this platform is very similar to the Department's requirements. Only minimal configuration changes are needed to bring this product in line with expectations.

A detailed consultation/analysis phase will be conducted soon after the contract award to get more accurate estimations for subsequent implementation phases. These will be fed into an initial Project plan to ensure the plan is as detailed as possible, with outcomes for a phase delivered through two-week sprints. This phase will also ensure that sufficient resources have been assigned. If there is a need for additional resources to be assigned, Texuna can easily do this from its available pool of highly skilled staff.

An initial Project plan is presented below. This has been put together based on Texuna's past experience of very similar projects and the detailed information provided in the RFT documentation.

Note we need a project plan - need the estimations first prior to this being created.

Texuna will approach this particular project as a series of sub-projects/phases as highlighted below:

1. A detailed consultation/analysis phase will be conducted soon after the contract award to get more accurate estimations for each of these phases and for the particular configurations needed by Department of Agriculture. These will be fed into the initial Project plan to ensure the plan is as detailed as possible. This phase will also ensure that sufficient resources have been assigned. If there is a need for additional resources to be assigned, Texuna can easily do this from its available pool of highly skilled staff. This phase will last 4 weeks.

2. Build and testing phases (product configuration and deployment): These work packages will involve making configuration changes to our existing authentication platform (called Texuna IAM). Texuna IAM will be configured to exactly meet the needs of Department by introducing (or updating existing) validations, rules, standards, protocol versions and deploying a 'fit for purpose' product on an initial Development/test environment. The Development/Text environment will be fully designed and configured during the infrastructure and environment setup period. Each system to be integrated will be treated as a work package (though some work may be common and will therefore overlap). This task will involve getting user data structures from existing application suppliers, ensuring the appropriate integration protocols are correctly enabled and configured in both systems. Testing will also be conducted for each work package to ensure an optimal solution is delivered to Department. We expect to deliver the initial version to UAT in two development waves, each wave will last 6 weeks, and will be made up of 3 2-week sprints.

3. UAT phase: This work package will involve the Department and any associated staff/users carrying out detailed user acceptance testing of the solution. Texuna will be on standby to assist and facilitate this testing period and can, if needed, run a workshop on site to gather feedback. The feedback received will be categorised into a number of different categories, major issues and flaws will be resolved with urgency, enhancements and suggestions will be prioritised in conjunction with the Department, with some work possibly forming part of a post-release package (e.g. suggestions that were not part of the initial request but are now deemed useful). This phase will last 4 weeks.

4. Go-live phase: This work package will involve Texuna handing over the solution to the Department ahead of go-live. This will involve the deployment of the solution onto suitable Department resources, which can be carried out in conjunction with Texuna staff (either remotely or on-site) as required. Training of Department staff and key end users will also take place in this period. The service desk resources will, if required, also come on line at this stage. This phase will last 4 weeks, after which the project enters the "business as usual" or "post go-live" phase. | |

Intro	Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.				

	Sector	Solution	Question	Template Response	Picture number
Department of Agriculture		IAM	Describe capability of solution to operate in tandem with Department's existing SSO solution. Indicate if any adverse impacts are likely to old or new solution.	Texuna IAM gives a guaranteed capability to operate in tandem with the existing SSO solution. It is achieved through integration with existing SSO solution Oracle database tables and real-time synchronisation of Identity and Access permissions data. Texuna IAM provides connectors to import data from legacy Oracle SSO IdP. Oracle database tables will be re-used (existing identity, roles and authorisation data) without impacting the legacy system.

Imported users, roles and anuthorisation data will be used to authenticate users into Microsoft Dynamics CRM through SAML2 or initiate user provisioning/update/de-provisioning into external systems. Customised provisioning logic can be configured for each external resource.

Texuna IAM will deliver extended capabilities of modern and industry standard SSO approaches (SAML2, OAuth2, OpenID, SCIM, JWT etc) across the Department's IT landscape. However, running two SSO solutions in parallel will add complexity to the IT infrastructure and requires more effort and budget for support and maintenance. Therefore parallel operation should only be seen as a temporary risk mitigation exercise.

Using Texuna IAM eliminates the need to have specialist open-source technicians or authentication security experts on site, yet avoids the expense of bespoke IdM systems. Once installed, application developers, suppliers and SaaS partners have the option to use the SAML2 or OAuth2.0 web standards to authenticate users into your applications and services using Texuna's IAM. Shibboleth is the world's leading open source SAML implementation for authentication and authorisation. | |
| Department of Agriculture | | IAM | Can policy enforcement rules be integrated with old solution? Will a mechanism exist to, for example, lock SSO accounts when accounts are locked on the provided IAM solution (and vice versa)? | Texuna will support the Department with policy enforcement rules and rules integration with the old solution. Texuna IAM provides a powerful and customisable processing behaviour/workflow for different types of users. For example, if a new user record came from some legacy source and requires additional processing and confirmation workflow, this user is still stored in the Texuna IAM database as a preliminary record with a flag so it is not synchronised/provisioned anywhere until all necessary workflow checks are passed. These checks may involve confirmation of user account manually by other users who enjoy specific privileges (Texuna IAM can notify responsible users about it). Once user record passes eligibility checks the provisioning component would synchronise and/or provision this new user account into the required external systems (or in an update scenario, the provisioning component can additionally deprovision user record from any systems where the user was removed - all based on configurable provisioning workflow rules). The Workflow component can, therefore, use business rules and workflows to lock SSO accounts or vice versa.

Provisioning of a user account in Texuna IAM can be triggered:
- automatically - by default (according to existing rules, when any change that requires provisioning is detected, close to real-time);
- manually (by a user who has the permission to perform manual synchronisation/provisioning)
- externally (by making a REST API call to a specific endpoint, if caller has a machine-account within Texuna IAM with requisite permission to invoke the service; authorised via OAuth 2.0 service component)
- if options above are not enough for some reason, it's possible to develop additional custom integration points (although not recommended).

Texuna IAM provides industry standard and SCIM-compliant rest-API out-of-the-box. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. It can, therefore, act as a secure message integration hub between integrated systems. Our provisioning component uses a well-established and powerful connectors framework which provides connectors for various external systems and protocols. Synchronisation Connectors can be customised for any specific use-case as needed within the same framework architecture which allows for adding/removing/changing the amount and nature of the outbound resources without change to business logic of the IAM and synchronisation itself. | |
| Department of Agriculture | | IAM | Administration Training provisions available (staff training options and/or online guidance) | Texuna provide both fully-managed services and also work with our clients to build and train them so that they are able to manage the services going forward.

Texuna is able to offer training in any of the following formats:
* Manuals and user guides - there is comprehensive documentation available to users of the Solution.
* Videos for users who are new to the Solution or who want a refresher for infrequent tasks.
* Webinar - Texuna can offer remote webinars as a training option which is useful particularly if attendees are geographically spread. These can also be recorded for future reference and playback.
* Face-to-face training for larger user groups in geographically strategic locations to maximize participation.

Training for Support and/or Departmental staff can be carried out on-site. Generally these sessions would be treated as Train-the-trainer style sessions, and a number of sessions can be accommodated. For these users we would focus on end-to-end process training including any administration tasks, reporting elements and support for end users. We have the necessary skills and experience to ensure that a complete knowledge transfer is accomplished to equip Department staff with the knowledge they need to fully support their user base.

Texuna is able to provide comprehensive training sessions supported by full documentation and test case scenarios. All documentation will be customised to the Department needs, with appropriate branding/etc being used. Technical documentation will be provided for the administrative teams, while user guides will be made available to the end users. These user guides can exist as either stand-alone documents or help/guidance pages within the application. | |

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Department of Agriculture		IAM	Administration facilities and features available for configuration and management of roles and policies, and summary reporting	Texuna IAM can control the authorization of users when accessing connected Applications/Services. Texuna IAM does this by assigning users to groups (i.e. roles). Each group equates to a set of permissions or a role in an Application. Users belonging to this group will have access to said function within the Application. Groups can have sub-groups created – these represent a more granular level function within an Application/Service. These groups and therefore applications/services access are controlled by the 'Group access rules' functionality. These business rules define the users who can have groups and the application available to their account. The rules can be based on any user/organization/group attributes, such as address or other profile information. If a user changes address or other profile information that results in the breaking of identity authentication rules, the group is no longer available on their account and access is removed. These Group Access rules may be managed via the Texuna IAM user interface, by a system administrator, without the need for a system release or supplier involvement. Furthermore, business rules and validation can be configured within Texuna IAM to manage data changes. For instance, if the Group Access rules cannot facilitate complex validation or rules, custom business rules and workflow can be configured within the IAM solution. This operates in a similar nature, removing access from groups and therefore applications/services based on data changes or conditions. Texuna IAM includes a sophisticated audit capability so that all user activity is recorded in the audit trail. The IAM supports: * Full audit trails and versioning on all profile and Texuna IAM configuration records. * Full audit trails on user actions and access, including failed attempts. Authorised staff, as configured by the Department, are able to view the audit records via the back office administration.	
Department of Agriculture		IAM	Level of critical support, availability, contacts, response times, etc.	Texuna will provide critical support for the solution based on our extensive experience of similar applications, whilst also taking into account the Department's specific requirements. A typical set of SLAs we would use for a project of this nature are listed below: P1 issue (i.e. system unavailable/unresponsive to all users): Response and resolution within 1 hour P2 issue (i.e. system unavailable/unresponsive to some users): Response within 1 hour; resolution within 4 hours P3 issue (i.e. system bug, connectivity issues affecting aportion of users or section of site): Response within 8 hours; resolution with 1 week P4 issue (i.e. general bug or issue, not majorly affecting users): Response within 1 week; resolution based on an agreed timeline These values can be discussed before final agreement. Texuna's target availability of the system will be 99.9%. the target uptime of the UK's Department for Education's Secure Access application was 99.9% and this figure has been met for the lifetime of that contract. We have proven history of providing this availability and can report on this via ongoing monthly reports as needed. To ensure that the Department's needs are met for support and availability, Texuna can provide a dedicated resource, including telephone line for use. This can, if agreed, include out of hours support as needed.	
Department of Agriculture		IAM	Level of general support provided, contacts, white papers, online community, support videos etc.	Texuna's solution will incorporate the ability to process and upload guidance text, documents and videos. The solution will allow this be processed via self-service by specified users (e.g. the admin team from the Department), and Texuna staff will be able to provide training ans assistance as needed to ensure that the updates can be made when needed. Texuna's service desk offering, if required, will be according to ITIL v3 best practices. Our helpdesk is certified to the ISO 20000-1 standard (Service Management). Texuna provides professional services from London and from Cork in Ireland with engineering and testing support offshore. Texuna have approx 15 staff available to provide on-site support for projects in Ireland, with an additional 20 staff for remote support. Texuna can provide a level 1 service desk to all end users of the solution, typically we would provide this via email, phone and chat support during normal business hours (09:00 - 17:00, Monday - Friday, excluding public holidays). Extended hours or more detailed information of this can be negotiated to ensure we deliver a service that our customers want and need. If a full support desk to end users is not required, Texuna will instead offer a dedicated level 3 service desk. This will be a dedicated service desk, using phone, email or chat, targetted at the staff within the Department who themselves offer support to the end users. As per the level 1 offering, this would be for normal business hours. Texuna has nominated Standards Officers in each office whose role is to ensure that our standards processes are operating effectively. They are also responsible for management reporting to our CEO who strongly advocates our standards processes. We are able to monitor and manage the queries received so that the service level is met and can provide reports on activity as needed.	

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Department of Agriculture		IAM	Added value provided within response, e.g. any features, functions or supports not specified as a requirement but will be provided within the solution and be of benefit to the Department [9]	When Texuna deploy solutions we do not limit the amount of users, profiles, groups, usage or data that can be setup and handled. Efficient engineering permits huge proportions of concurrent users to be supported. For example the DfE SA IAM is now witnessing over 300,000 successful logins a month and has potential support for over a million users and a comfortable throughput of almost 100,000 logins per hour. Texuna IAM provides the concept of 'organisations' which are hierarchy units reflecting line management structures or directorates/faculties. Approval processes and responsible persons may be configured independently for each 'organisation' and approval functions may be delegated to responsible personel. Texuna IAM has a flexible management component for role based access control and approvals process. DfE SA IAM had first line support team of 2 operators that managed 100 000 users across sector using flexible delegation rules. Texuna IAM has multilevel audit trail. The audit trail is configurable to be as light touch or as extensive as required. Audit follows these principles: * User access control - so that permissions are granted to individual users so that the audit record shows the individual. * Accountability for all record updates and changes including additions and deletions, with online viewable/searchable audit history logs. * All data operations can be independently audited * Audit logs are themselves subject to access control management The above ensure that Texuna IAM provides a complete audit trail that records: * who accessed the data * when the data was accessed, * what data was accessed * what changes were made The audit trail tracks access to data and this includes report generation so that it is possible to identify and analyse the reports generated out of the system as well as screen views, i.e. there is a complete record of all user activity. Audit, history and versioning features ensures all users actions are tracked so that there is a complete history of events and transactions undertaken with date and time stamps. The audit trail includes a highly granular level of detail so that views or changes at field level will be recorded. Audit records are searchable using filters and subsets can be exported as CSV / Excel file for further analysis and accountability tracking. The Audit trail also tracks automated processes, such as web service interactions. Exact data sources and destinations can be traced to the date and time of the upload or download. Texuna IAM requires MFA for 'Admin' users to provide highest standards of security. As a best practice we also restrict highly privileged systems administration access via VPN tunnel. All traffic is encrypted in transit (TLS), and is also encrypted at rest. Texuna IAM takes a best practice approach to securing data. No shared secrets are directly stored, but are salted and hashed. Furthermore, a minimum set of authentication data is cached for maximum performance and exposed to the external internet. Data in Transit uses: * Industry standard SSL between an authenticated web browser using the HTTPS protocol (Transport Layer Security - TLS1.2). * A combination of algorithms to lock keys with ciphers: SHA 256 bit (SHA-2), RSA 4096 bits key, AES256-SHA384. * Further data encryption in transit through public cloud hosting for all IaaS, PaaS and SaaS services. * IPsec (AES-256, SHA-256) from in-house through Virtual Private Cloud or Virtual Private Network.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Tenderers are asked to include, as part of the • Main phases/milestones of the project taki • Responsibilities within each phase/milesto • Key deliverables • Duration of each phase This outline plan must be based on informati	Texuna's proposed project plan is based on our experience of delivering similar projects for previous clients. The expected approach allows for efforts to overlap and run in parallel where appropriate, to ensure a quick turnaround of deliverables. The project plan outlines the main phases, and also includes a section of "non-development tasks" which need to be tracked. The ultimate responsibility for this plan will lie with the Texuna Project Manager, with clear updates being provided to the Enterprise Ireland Start-up Landscape team throughout. It is the responsibility of Enterprise Ireland to sign-off/confirm that each stage has been completed to their satisfaction. 1 UAT phase is included towards the end of the initial phase, this is expected to be the final, formal UAT phase. As the solution being proposed will include a dedicated UAT environment, it is expected that ongoing testing of releases and milestones/deliverables will be carried out throughout the life of the project, with the final UAT phase being the formal confirmation needed for go-live to go ahead. The project plan is based on a 3-month delivery window, the plan is split into individual weeks. There is a lot of scope for elements to be altered or rearranged if needed, this project plan will be used as the starting point of an ongoing, live project plan which will be used throughout the life of the project should Texuna be successful. <<INSERT PLAN FROM: https://drive.google.com/open?id=1Y3RXrJR8f2q9HWAd6wlethe6qKyze3Px>>	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will be required to a Following project commencement, the succe	Texuna is based in Blackpool Retail Park, Cork. This provides very easy access to Dublin, and Texuna will be able to attend any and all meetings, in person, in the Enterprise Ireland offices in Dublin. To aid in communications, Texuna will commission a dedicated telephone number for use by Enterprise Ireland staff which will connect with the Texuna project team. In addition, a dedicated email address (or multiple email addresses, if required) will be created to allow for targeted communications between Texuna and Enterprise Ireland. This will ensure that Enterprise Ireland has a single point of communication, and will ensure that all members of the Texuna project team will receive all notifications. This is Texuna's standard approach for project communications.

Regarding online conferences, Texuna has extensive experience of engaging using tools such as Skype, Webex, Zoom or others. We will utilise whichever solution is used by Enterprise Ireland, if there is no such tool then we would suggest the use of Texuna's preferred tool - Google Meet.

A detailed project plan will be created, based on the original project plan that is submitted along with this response. This will be a live document, which will be altered as required. This will be based on Prince 2 project management best practices, all major tasks and deliverables will be marked with the responsible members (either Enterprise Ireland or Texuna or both). This document will be fully editable by all members of the project team for both Texuna end Enterprise Ireland staff, with version control being used to ensure it is obvious when and by whom the changes were made. | |
| Enterprise Ireland | | Development and Delivery of a Start-Up Landscape database | Tenders must outline, as part of their submis • A dedicated project manager resource fron • A shared project management repository t • Schedule of communication to Enterprise I • Escalation procedures in the event of failur | Texuna will provide a dedicated project manager for this project - Paul Collins. Paul is a PRINCE2 certified project manager with extensive experience of working on projects within Texuna. As part of the project initiation, a shared project management repository will be created. Texuna proposes that this repository exists on Texuna's google drive account, with access restricted to members of the Texuna and Enterprise Ireland project team. All documents added to this repository will be version controlled, and a full history will be available to see when files were created, updated and by whom.

As part of Texuna's project initiation, a schedule of communications will be agreed upon. To begin with it would be suggested that frequent checkpoint meetings would be held via video conference between members of the project team. These could be daily or weekly as needed. A more formal project update meeting would be carried out on a monthly basis; these could be held, in person, in Enterprise Ireland's Dublin offices. Formal project reports would be provided ahead of this meeting, the format of which can be agreed upon as part of project initiation. Reporting on KPIs (described below) would also be provided ahead of these meetings.

Texuna's approach is to be as collaborative and as open as possible with all clients. As such, a dedicated telephone line and email address(es) will be made available to Enterprise Ireland and we would encourage that communication lines to be kept open as much as possible. We do not advocate an approach where issues can only be discussed during formal meetings.

In the unlikely event that issues need to be discussed in more detail or need to be escalated, we would advise on the following escalation path: Project Manager - Contract Manager - CEO. Where possible, issues can be raised initially with the support email addresses and the Texuna PM can get involved as needed. If the response is not deemed satisfactory or is not forthcoming, then the issue can be raised directly to the Contract Manager and/or CEO directly, as deemed necessary. Direct email addresses will be provided to Enterprise Ireland as part of project initiation. | |
| Enterprise Ireland | | Development and Delivery of a Start-Up Landscape database | The successful tenderer will be expected to enter into a Service Level Agreement (SLA) with Enterprise Ireland with an agreed set of Key Performance Indicators (KPI's) which will measure the progress towards the successful conclusion of the project and post go-live activities. Tenderers are expected to supply a suitable service level agreement that outlines key components such as: a) Change Management b) Scheduling of maintenance tasks c) System uptime d) Support and maintenance agreement e) Support escalation procedures f) Backup strategy and schedules g) Disaster recovery procedures & communication plan Please note that Enterprise Ireland will agree the final content of the SLA with the successful tenderer. | Texuna will agree upon a series of KPIs as part of a service level agreement. Suggested KPIs are as follows, all are open for discussion/agreement as part of contract discussions: a) Change management: All changes are published outside of business hours. No unauthorised or unexpected changes implemented. b) Scheduling of maintenance: All maintenance will be planned for in advance, with dedicated maintenance windows agreed upon ahead of time. No maintenance to be carried out outside of these windows. c) System uptime: Target uptime of 99.95%, excluding scheduled maintenance. d) Support and maintenance agreement: d-1) Support items will be categorised as P1, P2, P3 or P4. P1 = immediate issue with system, P4 = observation of usage. d-2) Response time for P1 issue is 1 hour. Resolution is 4 hours. d-3) Response time for P2 issue is 4 hours. Resolution is 8 hours. d-4) Response time for P3 issue is 1 working day. Resolution is 1 working week. d-5) Response time for P4 issue is 1 working week. Resolution is to be agreed upon based on issue. e) All issues raised via support are to be responded to based on the above timelines. This is tracked in an internal Texuna CRM tool. All escalations are to be resolved based on agreed timelines, with these also being tracked in the same internal CRM tool. f) Backup strategy and schedules: Backups will be processed nightly and stored offsite. Logs of backups are maintained and can be shared as necessary. g) Disaster recovery procedures and communication plan: A full DR plan will be provided to Enterprise Ireland as part of project go-live. This will include a test of the process. A schedule of subsequent tests will be agreed upon at go-live and will be tested in long maintenance windows according to this schedule.

It is expected that the KPIs above will be reported on to Enterprise Ireland on a scheduled basis. Texuna's suggestion is to deliver this information monthly, as part of formal monthly meeting. | |

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will design and imple Prospective tenderers must outline their pro	Texuna have 17 years history working with public and private sectors datasets (healthcare, education, banking, insurance). Texuna work with ETL tools and Data Warehouses (e.g. Jisc - assessing, integrating and migrating 140+ feeds into a conformed enterprise data model, as well as re-supplying customer-oriented data through a new 'MyJisc' portal). We have extensive integration and API experience (E.g.Edubase system for UK DfE) as well as migrating data from historic systems of record to new cloud-based replacement systems. Replacement systems are often bespoke in nature, so during migration we build test straps that SQL-based sanity checks to ensure that replicated data that is migrated is absolutely assured to be identical to original source data irrespective of format or schema. Texuna will develop a data model for StartUp Landscape Database that is optimised for current data, flexible and easily extended with new fields through the Administration portal. Texuna adhere to the Open Data standard for build and implementation, having used Open Data patterns and libraries across projects at front-end and back-end. As open source software experts, we support open standards. Being vendor agnostic we select the most appropriate tools for the task and ensure clients have future portability options to avoid lock-in. We have already worked with UK Goverment Data Services agency to implement gov.uk services. We constantly review published patterns and best practices from GDS and industry thought-leaders and reuse existing tools, libraries and guidance such as Digital Frontend. Texuna suggest separation of operational and reporting databases implementing StartUp Landscape database for Enterprise Ireland: <https://drive.google.com/open?id=1BRPDTWywdpqgt_LnKAMmmsQalx10AJ5q> This approach increases data management flexibility, improves data quality and guaranties highest performance for RESTful API searches and GraphQL queries. System administrators will be able to manage data, add new custom fields and track population of newly added fields before publication of data to reporting database. Publication will be made through UI for system administrators. Such two-step publication approach improves data quality which is crucial for data publication under Open Data Technical Framework. Read-only reporting database will guarantee high performance for data retrieval. It will scale easily to sustain high-frequency RESTful API and GraphQL queries even if search is embedded on portals with large audience. Texuna uses tools like Swagger/SwaggerUI for automatic documentation and visualisation of the API. Each endpoint is comprehensively documented using standard rules in a very user-friendly form. The entire RESTful service is described in YAML or JSON format. Our well-established development process streamlines development with well-formatted documentation and test stubs provided through Swagger. Simplified integration code and automatic test scripting give high-quality assurance long term over the RESTful API. <https://drive.google.com/drive/folders/1d7J1V3APjMJMrdYr9iHJDMp5dVDvCMNk> Performance and penetration testing of RESTful API guarantees security and availability of live services. As all components in the system are implemented as stateless RESTful API services, they support horizontal scaling. Components can also be packaged in containers and scaled independently across a hosting platform. Alternatively autoscaling via AWS capabilities can be arranged or pre-arranged scale up at key points (e.g. seasonal increase of Enterprise Ireland database usage).	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will design and imple This will the allow the Start-up Landscape tea • Create new funding supports • Edit all data fields relating to existing fundi • Delete existing funding supports • Publish/Unpublish existing funding suppor • Maintain options for dropdown lists • Create additional custom data fields of the o Free text o Hyperlink o Checkbox (yes/no) Prospective tenderers must outline their pro	https://docs.google.com/document/d/1rIks5zoXSOgjPHrUpYQ_ex2vSAjBHpnlJmYsj2BGw9E/edit	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will design and impl The interface must be compliant with the sp The dataset will be published under an Open The successful tenderer must have a clear un Tenderers must outline their process for achi	Texuna is a RESTful API integration expert for public bodies systems and registers. Texuna developed a fully functioning API for UK DfE GIAS system following Government Data Services and Open Data standards in 2017/18. Texuna as an Irish company is familiar with Open Data Technical Framework and its recommendations published by the Department of Public Expenditure and Reform. StartUp Landscape Database dataset will be published compliant with the Open Data Technical Framework specification. Dataset will be published under "Create Commons Attribution 4.0 International" license and it will be clearly identified in the metadata associated with the dataset. Texuna has experience of publishing public datasets and APIs and a clear understanding of the process. Texuna will guide the Enterprise Ireland Start-Up Landscape team on the steps to ensure that the dataset is compliant with Open Data standard. Texuna suggest separation of operational and reporting databases. https://drive.google.com/open?id=1BRPDTWywdpqgt_LnKAMmmsQalx10AJ5q This approach increases data management flexibility, improves data quality and guaranties highest performance for RESTful API searches and GraphQL queries. System administrators will be able to manage data, add new custom fields and track the population of newly added fields before publication of data to the reporting database. Publication will be made through UI for system administrators. Such two-step publication approach improves data quality which is crucial for data publication under Open Data Technical Framework. Read-only reporting data base will guarantee high performance for data retrieval. It will scale easily to sustain high-frequency RESTful API and GraphQL queries even if search is embedded on portals with large audience. Texuna uses tools like Swagger/SwaggerUI for automatic documentation and visualisation of the API. Each endpoint is comprehensively documented using standard rules in a very user-friendly form. The entire RESTful service is described in YAML or JSON format. This streamlines development with well-formatted documentation and test stubs provided through Swagger. Simplified integration code and automatic test scripting give high-quality assurance long term over the RESTful API. Performance and penetration testing of RESTful API guarantees security and availability of live services. As all components in the system are implemented as stateless RESTful API services, they support horizontal scaling. Components can also be packaged in containers and scaled independently across a hosting platform. Alternatively, autoscaling via AWS capabilities can be arranged, or pre-arranged scale up at key points (e.g. seasonal increase of Enterprise Ireland database usage). Texuna uses Amazon API gateway for this purpose. It is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale. Using UI console or config tools like Ansible/Terraform, we create a "front door" RESTful APIs endpoints for applications to access data, business logic or functionality. <https://drive.google.com/open?id=1RYxRt-I3EP_0j7SJKh3DgJL4QSjNiYwa> Amazon API Gateway handles all the tasks involved in accepting and processing up to hundreds of thousands of concurrent API calls, including traffic management, authorization and access control, monitoring, and API version management.	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	In addition to the requirement F8 above, the Tenderers must outline their approach for ad	Logical architecture (NIkita) Posgraphile seamless integration Screenshot of query Texuna is an API integration expert for public bodies systems and registers. Texuna developed a fully functioning API for UK DfE GIAS system following Government Data Services and Open Data standards in 2017/18. Texuna will provide GraphQL layer on top of the RESTful API interface to allow users to query the API, filter, transform the data returned without relying specifically on the constraints presented by RESTful endpoints. Texuna uses PostGraphile to provide GraphQL API. PostGraphile provides GraphQL API server retrieving data from existing PostgreSQL database. PostGraphile automatically detects tables, columns, indexes, relationships, views, types, functions, comments, and more — providing a GraphQL server that is highly intelligent about data, and that automatically updates itself without restarting when updates are applied to data model. Texuna suggest separation of operational and reporting databases. https://drive.google.com/open?id=1BRPDTWywdpqgt_LnKAMmmsQalx10AJ5q This approach increases data management flexibility, improves data quality and guaranties highest performance for RESTful API searches and GraphQL queries. System administrators will be able to manage data, add new custom fields and track the population of newly added fields before publication of data to the reporting database. Publication will be made through UI for system administrators. Such two-step publication approach improves data quality which is crucial for data publication under Open Data Technical Framework. Read-only reporting database will guarantee high performance for data retrieval. It will scale easily to sustain high-frequency RESTful API and GraphQL queries even if search is embedded on portals with large audience.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will design and imple The functionality to query the database thro Tenderers must outline their approach for ad	Texuna will provide functionality to generate widget and that embedded front-end search and results into any website. Texuna has experiences of developing asynchronous SPA and embeddable widgets, our developer very well familiar with best practices and techniques. The widget embed code is a piece of HTML code generated when a user creates a widget for the portal. The user needs to copy that code to portal or blog to display the StartUp Landscape widget. The generated code will contain API key that is bind to the portal for which widget is generated. Widget code size will be very small so it will have no impact on target systems loading time. It will contain a link to JS script that asynchronously loads content and data for the widget. It is simplifies embedding and provides flexibility to Enterprise Ireland to further develop and release embeddable component without affecting target portals. Texuna is happy to work with Enterprise Ireland Strat-Up Landscape team on the specification and design of the embed tool that is tailored to user needs. Texuna delivered the Ofsted WebApp in 2018. User research was done to test hypotheses and design iterations through a combination of workshops and sprint reviews with internal stakeholders and representative external end users. User researchers conducted interviews (face-to-face and remotely) to review refined journeys on and distributed video composites of visual mockups, Balsamiq wireframe prototypes and iterated prototype designs based on GDS frontend toolkit and design patterns. Usability feedback was collected through observation, audio and video capture. We used Indeemo and Axure tools to coordinate workshops and remote sessions and capture user behaviour and record feedback.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Enterprise Ireland requires the successful ter The data generated in relation to impression Tenderers must outline their process for achi	Texuna is very experienced in the development of data collection and analytical systems. Start-Up Landscape Database solution will register all REST API invocations. Data will contain anonymised records about search parameters used, browser details. It will help Enterprise Ireland to understand frequency and patterns of service usage. Below is an example of a dashboard showing service usage by month. It is also possible to compare of service usage of one portal/organization against others. <https://drive.google.com/file/d/1eDvCdhk7QbKy4BGq8g6foCy6cM-rr5JW/view?usp=sharing> Administration portal will provide a dashboard page with widget configuration and filters for data analysis.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will be requirement Tenderers must outline their approach for ad	The registered API consumer will have a unique identifier (API key) assigned to them tagged to their account. Texuna will use AWS Amazon Cognito service for authentication, authorisation and user management. Amazon Cognito allows to add user sign-up, sign-in, and access control to REST API, web and mobile apps quickly and easily. Amazon Cognito scales to millions of users and supports sign-in with social identity providers, such as Facebook, Google, and Amazon, and enterprise identity providers via SAML 2.0. Amazon Cognito offers native integration with various AWS services like AWS Gateway which guarantee that API consumer should use registered API key to initiate a call to an API endpoint.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Tenderers must provide details of a suitable • Data bandwidth Limits (Monthly Caps if an • Cost of exceeding bandwidth limits • Geographic hosting location • An appropriate server architecture • Database platform – show how Enterprise	https://docs.google.com/document/d/1CikYj78wH52LIeFsaXlkLHHEYoDN88beAJ9qxsHKDLc/edit#heading=h.gjdgxs	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Tenderers must provide details on the appro	Rigorous testing at several levels, using automated and manual tools will precede any deployment to customer accessible test environments so that we are able to maintain our strong focus on quality delivery. Automated unit-tests and regression testing procedures will be utilised during the build phase. A testing procedure (unit-test) is created any task before it is submitted to the code repository. Each time a portion of code is submitted, the new build is automatically mounted and unit-tests are triggered not only for the newly submitted feature but for all code in the project (regression testing). This will ensure that the new code does not interfere with all features and tasks already implemented. Apart from automated unit-tests and regression testing, each release is tested by our quality assurance team with a variety of manual and automatic testing procedures. Automated tests procedures are implemented for every feature, and the release is also tested manually, where applicable (this usually includes UI operability checks based on use cases and standard user behaviour scenarios). Load testing is performed according to specified thresholds with reasonable redundancy, using testing software packages that emulate server load according to predefined scenarios. <https://drive.google.com/drive/folders/1d7J1V3APjMJMrdYr9iHJDMp5dVDvCMNk>	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Enterprise Ireland requires the successful tenderer to ensure that the Operating System (OS) is maintained and patched on a regular basis. In the event of a high importance security fix issued, this should be implemented as soon as possible. Enterprise Ireland should be notified in advance of any scheduled downtime, so this can be coordinated with business departments to ensure minimum disruption. As part of the response to this requirement, prospective tenderers must outline the process for scheduling and carrying out patching of the OS and other related software on your proposed hosting environment.	Amazon services are fully maintained and patched on a regular basis by AWS support teams. Amazon has all the appropriate resources to identify security issue severity and fix it in the short term. If security patching is required Amazon notifies email addresses associated with the AWS account stating the exact time when patching will occur. Enterprise Ireland email addresses can be added to these notification lists. This usually happens out of office hours. The proposed solution does not require additional steps after restarting single components and automatically returns to the operational state once Amazon finished pathing vulnerable component. The only component required patching by Texuna is container images. This is achieved by deploying updated container images every month. The proposed architecture provides high availability and deploying container images normally should not cause any downtime. The patching time window can be arranged with Enterprise Ireland. In the event of a high importance security fix issued, Texuna can deploy fixed containers immediately once the security patch is available. Texuna will provide maintenance releases in the live running phase on an ad hoc basis to resolve any identified bugs or system issues. All maintenance releases will be delivered fully packaged and documented ready for installation. Texuna will deploy all maintenance releases to the test environment for verification and signoff by Enterprise Ireland prior to promotion to Production. All planned maintenance activities will be scheduled to take place outside of regular working hours. Enterprise Ireland will be given notice in advance of regular scheduled planned maintenance. However, most releases will not expect to result in significant downtime (if any). Emergency or unplanned maintenance or additional deployments to resolve particular known issues will be delivered outside of normal business hours where possible. If any maintenance work does need to be conducted within business hours then this will be through an agreement with the Enterprise Ireland project team. To avoid periods of inactivity during upgrades and planned maintenance, critical parts of the system are deployed using a zero-downtime paradigm. The API is designed and developed to support backward-compatibility and blue-green deployment techniques.	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will be required to in Tenderers must outline their process for ach	The proposed solution proposes to use Amazon API Gateway service, specially designed to expose RESTful API services to the Internet. AWS Gateway API is an industry-leading cloud service that provides throttling on API requests to reduce likelihood of Denial of Service (DoS) errors or excessive request costs and to ensure a consistent end-user experience. With AWS Web Application Firewall attached directly to Amazon API Gateway, it is possible to dynamically create various blocking rules by analyzing different metrics and rates of Amazon API Gateway logs which include source IP addresses, usernames, request times, etc. <https://drive.google.com/open?id=1RYxRt-I3EP_0j7SJKh3DgJL4QSjNiYwa> Amazon API Gateway Amazon API Gateway is specially designed to act as a "front door" for applications to access data, business logic, or functionality from back-end services. Amazon API Gateway handles all of the tasks involved in accepting and processing up to hundreds of thousands of concurrent API calls, including traffic management, authorization and access control, monitoring, and API version management. AWS WAF - Web Application Firewall AWS WAF is a web application firewall that helps protect web applications from common web exploits that could affect application availability, compromise security, or consume excessive resources. AWS WAF gives control over which traffic to allow or block to web applications by defining customizable web security rules. AWS WAF can be used to create custom rules that block common attack patterns, such as SQL injection or cross-site scripting, and rules that are designed for a specific application. New rules can be deployed within minutes, letting respond quickly to changing traffic patterns. Also, AWS WAF includes a full-featured API that you can use to automate the creation, deployment, and maintenance of web security rules. Regular performance testing will be carried out on the StartUp Landscape Database portal. Besides the standard search for data scenarios by different services, Texuna conduct testing for adding new data or update existing records. We measure performance and make sure that it exceeds requirements. Fully reports are prepared after each performance iteration. Reports contain full performance testing process starting with requirements, architecture/environment and finishing detailed results and conclusions.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will need to make available a suitable test environment that will allow the Start-up Landscape team to carry out user acceptance testing (UAT) of the solution provided. This UAT environment should be available to the Start-up Landscape team at all times to test new content and configuration changes irrespective if there is a current UAT test phase in progress. Tenderers must outline their process for achieving the above.	Texuna's approach will always include 2 distinct environments, the Production system and a comparable Pre-Production/UAT environment. This UAT environment will exist in the same AWS instance as Production and will, when development is not ongoing, be functionally identical to Production, with a reduced performance setup due to the lower number of expected users. This will be available to the Start-up landscape team at all times and will allow them to test new content or configuration changes, as required. If needed, changes made can be quickly rolled back to a previous version. Through the use of the AWS services, the overall performance target for the UAT environment can be quickly increased where needed. This will allow for more formal UAT phases, which may include a larger number of users. During ongoing development, the UAT environment may be a version ahead of Production to allow the members of the Start-up Landscape team to review new features and enhancements and allow them to sign this off. The UAT environment can be configured, based on the agreement with Enterprise Ireland, to restrict access to specific locations, users or both. All deployments and updates of the UAT environment will be managed in a straightforward way, at all times updates are flagged in advance of actions being taken, with Enterprise Ireland having to sign-off before Texuna can take further actions.	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will need to provide Tenderers must outline their process for achi	Texuna's approach to testing splits this into 5 levels, as follows: 1) Developer: Unit tests 2) Tester/QA: Functional/regression testing 3) Business Analyst: Business/data testing 4) Customer: Acceptance testing 5) User: User acceptance testing Development process: testing and code quality control https://drive.google.com/open?id=1p8gdVub3toIfJAXVWY9Amfy5pGSa_mRO QA testing is via automated testing tools, and any tests that cannot be automated are tested manually during UAT prior to each production release. Levels 3 - 5 are based on the specific requirements of a release, with a formal test plan being put in place. In general, the same sets of tests can be carried out by the BA, Customer and User, although the User tests are more likely to be split across more people. Each specific piece of new functionality will attract a number of tests. Texuna will outline the steps to follow to test against the request, as well as outlining the main negative tests to follow (i.e. elements to test to ensure that invalid entries are flagged as such). These tests will be split across different user types and will include specific reference numbers to allow easy identification of the tests when being discussed. Texuna BAs will test all elements of the system in conjunction with the Customer. User Acceptance Testing is expected to follow after this, once known issues are identified, resolved or workarounds identified. As well as testing of each new piece of functionality, a series of standard tests will also be devised. These will be tests of the overall system functionality and are expected to be tested by the BA and Customer for each release to ensure new functionality does not negatively impact on existing functionality. These will also have specific reference numbers which will be tracked as testing is carried out. Known bugs and issues will be tracked in a shared repository, and updates for each testing phase will be fed into this, with new issues being added and existing bugs being removed as appropriate.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will need to provide Tenderers must outline their process for achi	Texuna will provide Enterprise Ireland and the Start-up Landscape Team with access to a Google Drive folder location that will be used by members of the project team on both Texuna and Enterprise Ireland's part. This folder will include the following: 1) A test plan document for each release. These will be created and maintained by Texuna staff and shared with Start-up Landscape team members. 2) A test plan document for generic, overall tests. These are tests to be carried out for each phase. These will be created and maintained by Texuna staff and shared with Start-up Landscape team members. 3) A document outlining all currently known issues on the system, along with timelines for specific fixes and workarounds, if available. This will be created and maintained by Texuna staff and shared with Start-up Landscape team members. 4) A test results spreadsheet for each release. This will include entries for each specific new feature test, as well as a section for the generic tests. Each test will be referenced by a specific reference number. This document will be created by Texuna staff. The updating of the document will be by the various testers as they complete their tests. It is expected that the testers will feedback for each test, pass or fail. All documents contained within this folder will be fully version controlled, and access to the folder and specific files can be controlled as needed with additional access for specific users possible.	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	When the UAT phase of the project has been Deployment of change requests post go-live Tenderers must outline their process for achi	Texuna have 15+years public sector experience managing databases, with deep understanding and practical experience of government needs. UAT Phase will involve the StartUp Landscape team and any associated staff/users carrying out detailed user acceptance testing of the solution. Texuna will be on standby to assist and facilitate this testing period and can, if needed, run a workshop on site to gather feedback. The feedback received will be categorised into a number of different categories, major issues and flaws will be resolved with urgency, enhancements and suggestions will be prioritised in conjunction with the Enterprise Ireland, with some work possibly forming part of a post-release package (e.g. suggestions that were not part of the initial request but are now deemed useful). Once UAT is accepted, Texuna will confirm with Enterprise Ireland date and time of release to the production environment and deploy the solution. Maintenance services will be provided as follows: Texuna have proposed a solution whereby the capabilities of the AWS hosting service will provide automatic system stack updates and maintain basic patch levels where possible. Texuna will configure the environments so that these tools are effective in maintaining the environment and will train Enterprise Ireland technical staff so that they are competent and capable to take responsibility and ownership at the end of the contract term. Texuna will provide maintenance releases in the live running phase on an ad hoc basis to resolve any identified bugs or system issues. All maintenance releases will be delivered fully packaged and documented ready for installation. Texuna will deploy all maintenance releases to the test environment for verification and signoff by Enterprise Ireland prior to promotion to Production. All planned maintenance activities will be scheduled to take place outside of regular working hours. Enterprise Ireland will be given notice in advance of regular scheduled planned maintenance. However, most releases will not expect to result in significant downtime (if any). Emergency or unplanned maintenance or additional deployments to resolve particular known issues will be delivered outside of normal business hours where possible. If any maintenance work does need to be conducted within business hours then this will be through an agreement with the Enterprise Ireland project team. To avoid periods of inactivity during upgrades and planned maintenance, critical parts of the system are deployed using a zero-downtime paradigm. The API is designed and developed to support backward-compatibility and blue-green deployment techniques.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	User access to the secure administration too Tenderers are asked to outline what how the	https://docs.google.com/document/d/1rWKNNWoLs85_1oK7PrbV1jfRrzK8kERePtrux6XO6eQ/edit	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Add changes to the funding supports stored Tenderers must outline their process for achi	Texuna's approach for any data-driven project is to ensure that all records are appropriately tracked and auditable. The approach suggested here will be as follows: 1) All records, of all types, will be created as a V1. 2) Any update made to a record will result in a new version of that record. 3) Any changes made to the record will include the user details of who made the change, along with a date/timestamp of when the change was implemented. 4) Any changes that are made automatically will be recorded against the System user. 5) Every record will allow users with the appropriate permissions to view the historic version of that record. 6) Users with the appropriate permissions can view older versions of the various records and can compare them visually as needed. These older versions are read-only. 7) Users who make changes that need to be reverted can do so. This will not result in the overall record being rolled back though, it will still be a new version (e.g. If a record is at v1 and a change is made it becomes v2. If that change is recognised as an error and the user fixes it, the record will become v3, even though the values held may be identical to v1). 8) Records can be archived from the system, but nothing can be deleted. This applies to records as well as changes made to the records. Archived records can be hidden from general view, but it is not Texuna's approach to ever allow data to be fully removed via the system UI.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	All internet-facing elements of the delivered The successful tenderer will be responsible f	The application has two external endpoints exposed to the Internet: a) Online Administration Tool vi Amazon Elastic Load Balancer b) RESTful API interface including GraphQL extension via Amazon API Gateway Both Amazon Elastic Load Balancer and Amazon API Gateway support custom domains along with setting up custom SSL certificates. Texuna will be responsible to update SSL certificates for both endpoints once certificates are issued and provided.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	In the event of a breach of security of the pro Tenderers must outline their process for dea	https://docs.google.com/document/d/1HW2c2edS7n9boZ5jPtM06tpigwJhTMxchmPM22-sl2E/edit	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Enterprise Ireland may employ third-parties Tenderers must confirm that you agree to th	https://docs.google.com/document/d/1GzkxEqZS4faRbg8_BT8_5tONyDty0gNwX43JCVQoC2o/edit	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	On completion of the term of the framework	On contract initiation, Texuna will create an exit management plan. This is a live document, which is edited and updated throughout the lifetime of the contract. A key part of this exit management plan will involve the returning of data to Enterprise Ireland and the complete deletion of data from Texuna's hosted solution. The exact steps of this will be agreed as part of the contract discussions but, in general, the steps will involve the following: 1) Hosted solution is switched off at the end of the agreed term. 2) Final backups are taken of the system and stored on offsite backup location. 3) Final backup, as well as a number of historic backups are prepared for transfer to Enterprise Ireland. These can be transferred via network (e.g. SFTP) or via physical devices (e.g. external hard drives) as agreed. 4) Once backups are received and verified as being recived by Enterprise Ireland, all other backups are securely removed from offsite backup location, with appropriate confirmations supplied. 5) Once backups received by Enterprise Ireland are verified as being valid, these remaining backups are also securely removed from offsite backup location, at which point no backup files or data will remain in the custody of Texuna. Additional steps regarding the secure return of additional data which may be held by Texuna will also take place, if necessary. This could arise should Enterprise Ireland supply Texuna with secure data during the life of the contract.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The continued uptime of the system will be i Tenderers are asked to outline what how the	https://docs.google.com/document/d/1p89tDE9f9sHJ2iVSiKNeALKw7xCADx31_IORjzxUsBM/edit#	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Tenders must detail your proposed backup p	Texuna use frequent backups intraday, week, month and year to provide a comprehensive audit trail of system state over time. We use the lastest backups to facilitate disaster recovery, and have conducted BCDR simulations to give high level of assurance that recovery is automated and fast. Texuna also provide an automated recovery feature that enforces a node service restart whenever service is lost for more than 60 seconds, and restarts typically take only a handful of seconds. Backup and Disaster Recovery Texuna uses Amazon RDS (Relational Database Service) to set-up/operate/scale PostgreSQL, eliminating installation, upgrades, storage management, replication, back-up snapshots. It also automates monitoring/metric management, Isolation & Security (data encrypted at rest). We provide 2 separate, standardised environments: * UAT (test sandbox): uniform testing with predictable behaviour, with Production data. * Production: live data and services. This infrastructure-as-software can be deployed entirely automatically. Disaster recovery needs little downtime and no testing/debugging. Texuna provides inexpensive, disposable "kill-and-restore" services. Longer term files/backups are kept in cheaper S3 file storage. Nightly backups will be retained in the same AWS region as the Production system with regular automatic daily backups to a different region for contingency. Texuna developed disaster recovery plan (DRP) to be used in the event of a significant disruption to the features. The goal of this plan is to outline the key recovery steps to be performed during and after a disruption to return to normal operations as soon as possible. All data is stored solely in PostgreSQL RDS database. Other elements of the proposed solution do not require backup procedures. PostgreSQL RDS uses a multi-zone highly available configuration in Production for valuable data. Amazon RDS creates and saves automated backups of DB instances. Amazon RDS creates a storage volume snapshot of your DB instance, backing up the entire DB instance and not just individual databases. Automated RDS snapshots are converted into manual snapshots for longer retention but automated snapshots remain in place as fully controlled by AWS. In addition the daily logical backups (SQL dumps) are saved using temporary isolated and encrypted EC2 instances, running through the AWS Lambda service. SQL dumps are mirrored to another AWS region for Disaster Recovery. Historical backups are eventually transitioned to the cheap, secure and robust Glacier solution to give multi-year cover.	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Tenderers are asked to verify as to whether t	Texuna is registered as Data Controller with the Information Commissioner's Office and certified to ISO 27001 for Information Security by BSI for all company operations. Security and privacy-by-design are fundamental to our approach. All staff are trained and contractually bound to processes for security and GDPR compliance. Texuna confirm that IP addresses will be stored only for the implementation of reasonable request throttling algorithm. Retention period for IP addresses is limited to 24 hours. Log files do not store IP addresses and store session ID or anonymised client ID as part of HTTP requests logging.	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will be required to p This documentation will need to be complete Tenderers must outline their process for achi	Prior to go-live, Texuna create training materials and user-guides for all our systems that are used for face-to-face training, and/or as system documentation. These include basic systems operations and guides on using the system. The documentation is supplied to our clients as part of handover activities, therefore, ensuring relevant information is available to clients when needed. In addition, Texuna also provides system management documentation and support materials as part of the delivery. Business requirements gathered as part of the analysis phase and used to specify the system features are also made available to client teams. Texuna also assist customers in establishing their set of standard procedures for responding to standard user requests as part of the end-user training. Full documentation for the system will be provided for review and signed off during rollout (prior to deployment of the live solution). Texuna is able to offer service and support help and guidance in any of the following documentation formats: • Manuals and user guides - there is comprehensive documentation available to users of the Solution. • Videos for users who are new to the Solution or who want a refresher for infrequent tasks. • Webinar - Texuna can offer remote webinars as a training option which is useful particularly if attendees are geographically spread. These can also be recorded for future reference and playback. • FAQ's help and help texts easily accessible to users from screens within the application Our documentation is well used and well regarded by our users. Technical documentation is commonly held on an online document repository/wiki to ensure master document control and visibility remains high. This normally comprises of: • Environment and server/services configuration • Release deployment scripts and procedures • Installation procedures • Upgrade procedures • Deployments • Upgrade details • Troubleshooting guide • Scheduled Tasks guide/details • Maintenance and monitoring procedures • Patches and Extracts details • Monitoring details • Backup details • Disaster recovery details • Encryption and certificate requirements • YAML documentation for any APIs that have been created • Patching policy • Certificates update details	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer will be required to p Tenderers must outline their process for achi	https://docs.google.com/document/d/1bYtPOzfruxMfqEHPRgP7Rfd8z7A5GQ4GPkxsUp_v3og/edit	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Prior to the production deployment, Enterpr All scripts, code, configuration files or docum	https://docs.google.com/document/d/1FpVnZPEyU7_f2_T4sJIAdUSWYE50amaJqaSUr4wpb8E/edit#	
Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	The successful tenderer is expected to provid It is envisaged that following on from this pe The successful tenderer will provide a secure Tenderers must outline their process for achi	https://docs.google.com/document/d/1sR2u1c_rnGl2sFClKsA-uy7LMM3OYfHaX86j4tWAIvg/edit	

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Enterprise Ireland		Development and Delivery of a Start-Up Landscape database	Tenderers must describe the different levels • Call logging procedures for customer • Call answer times (by severity of issue) • Support Package Description i.e. telephone • Size & location of your support facility (give • Online Help desk support facility and open • times) • Maximum response time for requests for s • Incident / Support Call Management mech	https://docs.google.com/document/d/10i8kpJ88YI8BKiEUG1kmL0aOecBEMJYmKhbIfpUPbXk/edit .	
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe the delivery team that you w	Texuna will accommodate all UoE needs and will cooperate with existing staff and suppliers using the tools and architecture already in place if needed. For DfE Secure Access we operated the Secure Access service with API interfaces to almost a dozen different systems all managed by different suppliers. We are accustomed to working with daily standups, KIT meetings and cooperating with CAB meetings within DfE. Texuna have a full complement of skilled full-time employees to draw upon as the project circumstances dictate, including:

● Programme manager with 20+ years systems and management experience - coordinating with the Product Owner to ensure the project stays focused on business outcomes and to help advise and steer team members across all involved parties.
● Delivery manager with 10+years management experience. They will take the role of scrum master to manage the delivery, lead the team and coordinate sprint ceremonies.
● Business Analyst - with 5+ years experience to assist with the definition, creation, refinement and management of user stories.
● Multiple developers - to code the services and API integrations. A senior developer with 20+ years experience will be responsible for the coordinating service that orchestrates other task microservices.
● A test manager - To automate and manage various aspects of unit, integration, security/penetration, and performance testing to ensure successful FAT, UAT and SDAT.
● A DevOps manager - to ensure all the necessary metrics are defined and monitoring are in place to assure successful delivery of the service and security of the data.
● One or more User researchers and content designers - to work with the business both with wireframes, user testing and researching user satisfaction of the design, interaction and the content. These will work across MVPs to ensure a consistent look and feel to the digital service flow.
● One or more frontend UI developers - to develop the user interface for the user stories and products to meet University and industry (like GDS) standards. Again, these will deliver UI components across the MVPs to ensure consistency.

Should a need for specialist skills arise that are not already available in-house, Texuna will complement through the use of selected partners e.g. AdHoc Global (User Research knowhow and Accessibility expertise).

Texuna have a presence in London and Cork and the team will work with the existing UoE methods and tools including regular ongoing face to face meetings and VC calls for remote participation. Key team members will physically attend all sprint reviews for show-and-tell. Code reviews and quality checks will be performed as part of the 'definition of done' and all team members will track their time spent on user story tasks and bug tickets to feed the overall project effort tracking and accounting. | |

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	Sector	Solution	Question	Template Response	Picture number
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe your experience of working a	Texuna use an agile delivery methodology focused on user needs. From rapid prototyping to launch/go-live we will use a mix of lean startup and timeboxed scrum sprints cycles so that product deliveries are iterative and users are able to provide feedback and direction throughout the build. Following kickoff and initiation, we conduct an Alpha phase where the user journeys are prototyped, initially low-fi and then high-fi journey workflows to confirm user stories, and user test various prototype screen assumptions, usually while the technical infrastructure is being finalised and configured. This is followed by software development sprints which are normally 2 weeks in duration. Each agile sprint will comprise a number of ceremonies: *Sprint planning and backlog grooming to prioritise user stories; *Daily agile standup meetings to improve communications among the team; *End of Sprint demo to engage users and solicit ongoing feedback; *Sprint retrospective (to discuss lessons learned and potential improvements to the process). As the sprinting progresses, a number of activities continue on an ongoing basis: *Continuous integration and continuous delivery activities; *Content design and ongoing documentation; *Automated regression testing and quality assurance. In preparation for a launch event where developed sprints are released formally to live running we perform more extensive testing on completed sprints and formal user acceptance testing is undertaken by the client. Texuna will also use some Prince2 principles to provide valuable additions such as project documentation, communications and quality strategy which will inform stakeholder engagement, and ensure that risks are mitigated early. These additional services are particularly relevant to complex projects. Standard project documents we will deliver through the lifetime of the project will include: *A communication strategy and plan - To define all parties with an interest in the projects and the means and frequency of communication between them and the project; *A governance process, and escalation routes complementing the communication strategy; *A risk and issue log - To act as a central repository for risks and issues allowing for effective and cohesive risk management. Texuna's practice for all projects is to have an open and transparent partnership with our clients and we regard this as a key enabler for successful, productive communications and joint working which will lead to a successful project conclusion. Communication, discussion and monitoring will be supported through: *Regular face to face meetings with the UoE project management team, typically in person and occasionally by video conference; *Regular sprint demo reviews to identify and address any issues early; *Project plan updates and exception reports - at intervals; *Meetings as required with third parties to identify issues and constraints or to manage risks; *Engagement and empathy building with stakeholders and specialists within the University to ensure a clear understanding of outcomes and priorities for delivery. Texuna expects collaboration with UoE "knowledge holders" through business analysis. Texuna will review and analyse the business requirements and prepare the Delivery roadmap. Texuna will help the University's IT team both to understand the required solution and also to conduct support and maintenance of solution and infrastructure.	

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University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe how you would work with th	For DfE Secure Access we operated the Secure Access service with API interfaces to almost a dozen different systems all managed by different suppliers. We are accustomed to working with daily standups, KIT meetings and cooperating with CAB meetings within DfE. Texuna delivered multiple MVPs and implemented project through series of sprints on time and with highest quality standards.

A 3-month project will deliver a Minimum Viable Product (MVP). Texuna will allocate approx 6 staff who will alternate onsite during an accelerated 2 weeks Discovery phase with quick successive deliveries in subsequent 10 weeks (ahead of September 2019 if started in May/June).

Discovery will outline the design of achievable User Stories to deliver a Backlog. Analysis will be based on a top-down business driven requirements and bottom-up analysis of data sources and quality - with productivity subject to successful collaboration with UoE team. Texuna will request full read access to data sources required for the MVP - to be granted prior to the end of Discovery. Only then will the main solution infrastructure be put in place and tested. Texuna will be responsible for the infrastructure, and for speed of startup the initial deployment will be on AWS.

Texuna's agile delivery methodology gives clear structure and regular handover of deliverables on a frequent basis to encourage rapid feedback and regular releases.

Texuna will complete project sprints every 2 weeks, with a sprint review with UoE at the end of each sprint. UoE will have the ability to contribute, reject or accept outputs and outcomes after each sprint - whether the outputs are documents, designs, or system releases.
Formal releases to UAT will take place at the end of each sprint and UoE will have 2 weeks (i.e. a sprint duration) to highlight any fixes required or to accept the UAT releases. In this way, a continuous approach to getting feedback and approvals for smaller chunks fo deliverables will be possible.

This aligns to UoE monthly deliverables plan, and invoicing will follow each monthly deliverables acceptance. Final delivery of the MVP at the end of the 3-month project will allow 3 distinct, formal product acceptance signoffs. | |

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	Sector	Solution	Question	Template Response	Picture number
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe the technology stack that yo	Texuna is a RESTful API integration expert for public bodies systems and registers. Texuna developed a fully functioning API for UK DfE GIAS system following Government Data Services and Open Data standards in 2017/18.

Texuna uses tools like Swagger/SwaggerUI (https://swagger.io/) for automatic documentation and visualisation of the API. Each endpoint is comprehensively documented using standard rules in a very user-friendly form. The entire RESTful service is described in YAML or JSON format. This streamlines development with well-formatted documentation and test stubs provided through Swagger. Simplified integration code and automatic test scripting give high-quality assurance long term over the RESTful API.

As all components in the system are implemented as stateless RESTful API services, they support horizontal scaling. Components can also be packaged in containers and scaled independently across a hosting platform. Alternatively, autoscaling via AWS capabilities can be arranged, or pre-arranged scale up at key points (e.g. seasonal increase of Enterprise Ireland database usage).

https://drive.google.com/open?id=17y_8R_rEUupcXb4TXGt4yJwURe5vqIVj

In-memory cache (AWS ElastiCache https://aws.amazon.com/en/elasticache/) for "hot" data provides the best possible user experience for adopters - even in case of any backend disruption in service. Cache operations consistently serve read and write requests within single-digit milliseconds to scale data tiers as and when application loads may increase. Reference data will be provided to 3rd parties not causing any delays on consumer systems.

AWS RDS for PostgreSQL (https://aws.amazon.com/en/rds/postgresql/) helps to change performance characteristics of Curriculum Management reference service on the fly and assign more resources when needed. Vertical and horizontal scaling options are provided. AWS automates these tasks reducing support and maintenance complexity. System administrator should set new data size required for solution when data volumes grow and change is applied immediately without downtime. Solution will utilise cloud storage (AWS S3 https://aws.amazon.com/en/s3/) for files proving almost boundless possibilities hosting video and other document types help materials.

The proposed solution proposes to use Amazon API Gateway service, specially designed to expose RESTful API services to the Internet. AWS Gateway API is an industry-leading cloud service that provides throttling on API requests to reduce likelihood of Denial of Service (DoS) errors or excessive request costs and to ensure a consistent end-user experience. With AWS Web Application Firewall attached directly to Amazon API Gateway, it is possible to dynamically create various blocking rules by analyzing different metrics and rates of Amazon API Gateway logs which include source IP addresses, usernames, request times, etc.

<https://drive.google.com/open?id=1RYxRt-I3EP_0j7SJKh3DgJL4QSjNiYwa>

Amazon API Gateway
https://aws.amazon.com/en/api-gateway/
Amazon API Gateway is specially designed to act as a "front door" for applications to access data, business logic, or functionality from back-end services. Amazon API Gateway handles all of the tasks involved in accepting and processing up to hundreds of thousands of concurrent API calls, including traffic management, authorization and access control, monitoring, and API version management.

AWS WAF - Web Application Firewall
https://aws.amazon.com/en/waf/
AWS WAF is a web application firewall that helps protect web applications from common web exploits that could affect application availability, compromise security, or consume excessive resources. AWS WAF gives control over which traffic to allow or block to web applications by defining customizable web security rules. AWS WAF can be used to create custom rules that block common attack patterns, such as SQL injection or cross-site scripting, and rules that are designed for a specific application. New rules can be deployed within minutes, letting respond quickly to changing traffic patterns. Also, AWS WAF includes a full-featured API that you can use to automate the creation, deployment, and maintenance of web security rules.

Performance and penetration testing of RESTful API guarantees security and availability of live service. Fully reports are prepared after each performance iteration. Reports contain full performance testing process starting with requirements, architecture/environment and finishing detailed results and conclusions.

Amazon services are fully maintained and patched on a regular basis by AWS support teams. Amazon has all the appropriate resources to identify security issue severity and fix it in the short term. If security patching is required Amazon notifies email addresses associated with the AWS account stating the exact time when patching will occur. This usually happens out of office hours. The proposed solution does not require additional steps after restarting single components and automatically returns to the operational state once Amazon finished pathing vulnerable component.

The only component required patching by Texuna is container images. This is achieved by deploying updated container images every month. The proposed architecture provides high availability and deploying container images normally should not cause any downtime. The patching time window can be arranged with Enterprise Ireland.

In the event of a high importance security fix issued, Texuna can deploy fixed containers immediately once the security patch is available. To avoid periods of inactivity during upgrades and planned maintenance, critical parts of the system are deployed using a zero-downtime paradigm. The API is designed and developed to support backward-compatibility and blue-green deployment techniques. | |

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University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe your experience of working v	Texuna is both a qualified AWS Consulting Partner and an experienced Azure practitioner. As an AWS certified consulting partner, Texuna are committed to maintaining a minimum level of staff certifications as qualified business experts, solution architects, developers and DevOps administrators. Texuna have worked extensively with AWS platforms and services over the last 5 years, including using Ansible and Terraform to automate the infrastructure and platform configuration as software. We have used a range of AWS services in a number of projects to collect and manage data flows and data warehouses. Texuna have years of experience deploying AWS services for startups (Edukit, Indeemo, Checkmate - using Cognito, SQS, Lambdas, DynamoDB and RDS) and government (DfE/NCTL/HESA/OfS). We have also delivered AWS stacks for Oxford Brookes University and University College Cork. We have migrated legacy solutions to AWS and Azure e.g. the DfE GIAS and Secure Access (high availability cluster); STA ItemBank. For universities and Jisc we deploy an entire Enterprise Data Warehouse pipeline on AWS services (DirectConnect, VPC, EC2, EBS, RDS - Postgres/SQLServer, Redshift, S3, Glacier, CloudFormation, API Gateway, CloudWatch). At Texuna we have built and deployed several microservice systems to live. For example we use Java for backend, modern JavaScript based frameworks for frontend, message queues and AWS Lambdas for a schools data collection service for Edukit. The EduKit project uses stateless microservices to upload 100's of schools data nightly. We use Ansible and Terraform to automate the infrastructure and platform configuration as software to give cloud portability eg with NCTL and DfE dev/UAT/Prod environments. GIAS morphed from a dedicated in-house java application on SQLServer (Edubase2), moving to AWS in 2015, before being re-engineered as a cloud API service supporting the GIAS Single Page App from 2017. In 2018 it was migrated to the DfE Azure environment through infrastructure-as-a-code best practices and portable, cloud-agnostic technologies. We created microservices with REST API endpoints using YAML documentation to automate language-independent code generation with test stubs via Swagger. Our development standards ensure code and network is protected from malware attack and vulnerabilities, with automated unit/integration testing for every release package and penetration testing prior to live running.	
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe your experience of deliverin	At Texuna we have built and deployed several microservice systems to live. We worked with GDS and DfE to migrate the Edubase legacy service to a fully functioning Rest API, allowing backend systems to be connected to a new Single Page App based on GDS design patterns and standard. We created microservices with REST API endpoints using YAML documentation to automate language-independent code generation with test stubs via Swagger. Texuna has developed and delivered a cloud-based series of microservices for Irish mobile app start-up CheckMate and their client Muintir na Tire. The service is used for community neighborhood watch, with real-time communication alerts. We migrated and retired a legacy system using a series of asynchronous services with API integration and message queues to manage the service delivery on AWS. Native mobile apps are available to users and a Single Page App is used for management and administration. Our EduKit project for schools also uses microservices to scale nightly data uploads from hundreds of school SIMS. Texuna is a RESTful API integration expert for public bodies systems and registers. Texuna developed a fully functioning API for UK DfE GIAS system following Government Data Services and Open Data standards in 2017/18. Texuna uses tools like Swagger/SwaggerUI for automatic documentation and visualisation of the API. Each endpoint is comprehensively documented using standard rules in a very user-friendly form. The entire RESTful service is described in YAML or JSON format. This streamlines development with well-formatted documentation and test stubs provided through Swagger. Simplified integration code and automatic test scripting give high-quality assurance long term over the RESTful API. Performance and penetration testing of RESTful API guarantees security and availability of live services. As all components in the system are implemented as stateless RESTful API services, they support horizontal scaling. Components can also be packaged in containers and scaled independently across a hosting platform. Alternatively, autoscaling via AWS capabilities can be arranged, or pre-arranged scale up at key points. Texuna uses Amazon API gateway for this purpose. It is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale. Using UI console or config tools like Ansible/Terraform, we create a "front door" RESTful APIs endpoints for applications to access data, business logic or functionality. <https://drive.google.com/open?id=1RYxRt-I3EP_0j7SJKh3DgJL4QSjNiYwa> Amazon API Gateway handles all the tasks involved in accepting and processing up to hundreds of thousands of concurrent API calls, including traffic management, authorization and access control, monitoring, and API version management.	

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe your experience of delivering	Texuna is an open solutions provider and open source integrator. We use state of the art technology to provide robust, highly functional and performant solutions to meet demanding business needs. Our approach is to adopt standard components and libraries to enable us to deliver high quality, flexible and user-friendly enterprise level solutions for our clients in aggressive timelines. We follow GDS principles and use a number of Agile methods such as Scrum, Lean and Kanban techniques to provide fit-for-purpose iterations with continual testing with real users. Where third party sources enhance or support the data processes being delivered they will be integrated seamlessly to enhance the user experience. We did not use WSO2 components previously but at Texuna we have built and deployed several enterprise level microservice systems to live. We worked with GDS and DfE to migrate the Edubase legacy service to a fully functioning Rest API, allowing backend systems to be connected to a new Single Page App based on GDS design patterns and standard. We created microservices with REST API endpoints using YAML documentation to automate language-independent code generation with test stubs via Swagger. Texuna has developed and delivered a cloud-based series of microservices for Irish mobile app start-up CheckMate and their client Muintir na Tire. The service is used for community neighborhood watch, with real-time communication alerts. We migrated and retired a legacy system using a series of asynchronous services with API integration and message queues to manage the service delivery on AWS. Native mobile apps are available to users and a Single Page App is used for management and administration. Our EduKit project for schools also uses microservices to scale nightly data uploads from hundreds of school SIMS. Texuna is a RESTful API integration expert for public bodies systems and registers. Texuna developed a fully functioning API for UK DfE GIAS system following Government Data Services and Open Data standards in 2017/18.	
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe your experience of working	Texuna created an eDisclosure service in the last 12 months. The service is composed of a collection of independently scalable microservices contained in containers and described in Docker files. We discovered the limitations of Docker Swarm and therefore switched to Kubernetes to manage orchestration. It is orchestrated through AWS EKS for simplicity of management on cloud deployment. To make the service portable for a large inhouse government installation, we tested deployments with Minio (to replace S3 object storage) and Rabbit MQ. The solution was delivered to the Irish government (Dept. of Finance) and designed to handle 100+TB of data. Kubernetes helps us to build, scale and manage our applications with dynamic, predictable and reproducible approach. The cluster scheduler capability lets developers build cloud-native applications while focusing on code rather than operations and administrative burden tasks. Kubernetes and containers, in general, give us the flexibility to develop, run, test and deliver the solutions either in the cloud or on-premises, without lock-in on service provider. Amazon EKS runs the Kubernetes management infrastructure across multiple AWS Availability Zones, automatically detects and replaces unhealthy control plane nodes, and provides on-demand upgrades and patching. We simply provision worker nodes with Terraform/Ansible and connect them to the provided Amazon EKS endpoint.	
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe top three risks of delivery th	Scope creep and project delivery date issues: Texuna has extensive experience of ensuring that the overall scope of a project is well defined from initiation stage, with scope creep being actively prevented. Work will be split into multiple sprints, with ceremonies being held at the end of each sprint to ensure that the scope is still on track. These meetings will also serve to ensure that the expected delivery dates are still being adhered to and planned for. The frequency of these meetings means that, should an issue that may affect the delivery date be encountered, the relevant project team members are notified about them early enough to take any corrective actions needed (either to increase resourcing, reduce or amend the scope, implement any fixes needed and so on). Staff turnover resulting in information loss: Staff turnover can cause large issues in a project. A team member leaving at an inopportune time can result in information being lost with that user (i.e. the staff member's knowledge is lost). Texuna has extensive experience in mitigating against these issues. In the first instance, it should be noted that the vast majority of Texuna's staff have 3+ years experience, with the likes of project/delivery managers, senior developers and DevOps having 5/7+ years experience in Texuna. Mitigations are still needed, and are accomplished as follows: 1) All work is extensively documented using our document management systems and CMDB. Any work to be delivered by developers or DevOps must be added to the CMDB first, ensuring that a history of this change (or changes) is recorded. Work is tracked using this system, so all updates (big or small) can easily be tracked. Work is baselined into milestone releases in the CMDB tool, these would equate to a 2-week sprint of development. 2) Texuna carries out regular knowledge sharing sessions for all staff. This ensures that all staff is kept up to date on the various projects being worked on, even if they are not themselves allocated to the project at that time. 3) Texuna is accredited with ISO 9001, 20000-1 and 27001 standards as part of an overall integrated standards management system. This means that, as much as possible, work is carried out the same way for each project. This ensures that, when needed, staff can be reallocated quickly between projects with little time wasted on getting up to speed on how the specific project is being managed and implemented.	

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University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe your quality control measure	Texuna has a range of well-defined standards for testing, all managed via our ISO 9001 and ISO 27001 systems. Rigorous testing at several levels, using automated and manual tools will precede any deployment to customer accessible test environments so that we are able to maintain our strong focus on quality delivery. Automated unit-tests and regression testing procedures will be utilised during the build phase. A testing procedure (unit-tests) is created any task before it is submitted to the code repository. Each time a portion of code is submitted, the new build is automatically mounted and unit-tests are triggered not only for the newly submitted feature but for all code in the project (regression testing). This will ensure that new code does not interfere with all the features and tasks already implemented. Apart from automated unit-tests and regression testing, each release is tested by our quality assurance team with a variety of manual and automatic testing procedures. Automated tests procedures are implemented for every feature, and the release is also tested manually, where applicable (this usually includes UI operability checks based on use cases and standard user behaviour scenarios). Load testing is performed according to specified thresholds with reasonable redundancy, using testing software packages that emulate server load according to predefined scenarios. Whenever a problem is highlighted by our QA team or during UAT, an issue is registered in a tracking system and immediately assessed by the development team. All high priority issues and bugs are resolved in the same release package. Independent penetration testing, if required, can be provided as a separately costed option by specialists such as BSI, who have previously tested Texuna software on multiple occasions.	
University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe how you would handover to	Handover / BAU transition will be planned with UoE. Texuna will rotate many team members from London and Cork office to onsite regularly throughout the project. This allows joined-up team communication and collaboration to oversee and manage progress effectively. Various specialists will engage directly with users and IT at UoE as needed, and there will be better broader upskilling of UoE staff in general. Texuna work collaboratively on an open book basis as an extension of the client team, building internal competence and capability. We use existing project and collaboration tools to minimize friction and maximize knowledge transfer or introduce alternatives if necessary. The key success factor for knowledge transfer is UoE staff involvement at every stage of the project: - During requirements definition, they participate in interviews and prioritization workshops - During the design stage, they contribute to modeling workshops - During the development and deployment stages, they provide feedback to the prototype demo sessions - On transition to Go-live, they participate in tests and training Texuna is able to offer training in any of the following formats: * Manuals and user guides - there is comprehensive documentation available to users of the Solution. * Webinar - Texuna can offer remote webinars as a training option which is useful particularly if attendees are geographically spread. These can also be recorded for future reference and playback. * Face-to-face training for larger user groups in geographically strategic locations to maximize participation. Training for Support staff and University policy staff will be carried out on-site. Two sessions are planned before going live and will be treated as Train-the-trainer style sessions. Texuna is able to provide comprehensive training sessions supported by full documentation and test case scenarios. All documentation will be customised to the University needs as in-house skills available to differ by UoE. Technical documentation * System management and maintenance processes are all fully documented which facilitates staff training and handover; * Documentation includes at a minimum: o Environment and server/services configuration, o Release deployment scripts and procedures o Maintenance and monitoring procedures, o Backup and Disaster Recovery, and o Encryption and certificate requirements. o YAML documentation for any APIs that have been created. User guides Texuna is able to offer service and support help and guidance in any of the following documentation formats: * User guides - basic overview of the application. * Videos for users who are new to the Solution or who want a refresher for infrequent tasks. * Searchable FAQ's and help text easily accessible to users from within app screens Texuna can provide helpdesk services according to ITIL v3 best practices. Our helpdesk is certified to the ISO 20000-1 standard (Service Management). Texuna provides professional services from London and from Cork in Ireland with engineering and testing support offshore. Texuna have approx 15 staff available to provide on-site support for UK projects, with an additional 20 staff for remote support.	

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University of Exeter (UoE)		Provision of a Curriculum Management Reference Data Service	Please describe any proprietary elements that	As a vendor-neutral solutions integrator, we continually search for the "best of breed" for our clients. We provide the best value for money, "achieving more for less" with a dedicated solution precisely tailored to their needs, very often leveraging open source components and libraries. Texuna's proposed cloud-based solution has an explicit pricing model both for software and hardware. Cloud-based hosting eliminates risks of ad-hoc purchases of hardware common for on-premise hosting because of hardware failures or over specification. Maintenance and support costs are reduced because system administrators do not need to install, replace parts and configure hardware. No additional licenses or fees above the resource used are required apart from hosting costs in the cloud or on-premise. Texuna adhere to the Open Data standard for build and implementation, having used Open Data patterns and libraries across projects at front-end and back-end. As open source software experts, we support open standards. Being vendor agnostic we select the most appropriate tools for the task and ensure clients have future portability options to avoid lock-in. We have worked with UK Government Data Services agency to implement gov.uk services (DfE GIAS and Ofsted Fostering Data Collection). We constantly review published patterns and best practices from GDS and industry thought-leaders and reuse existing tools, libraries and guidance such as Digital Frontend. Texuna assures effective project handover by: ☐ Formal project induction and continuity process with participants especially where organisational and/or functional changes are envisaged. ☐ Inclusion of key users from the kick-off phase, with a project collaboration environment to keep them involved in the project ownership, progress and deliverables to facilitate the handover. ☐ Delivering a learning centre website with user-friendly documentation and handbooks, video tutorials, FAQs, discussion forums to capture 'tacit' knowledge. ☐ Using show and tell sessions to address initiation hurdles. ☐ Providing real-time first line support during the post-go-live stabilisation period.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services Please describe your expertise in the specifi 1. Requirements and feasibility analysis 2. Mobile development 3. Scalable middleware 4. Web development 5. User Experience 6. Secure development If you don't have experience in any of the sp	Texuna will staff and support JISC wholly by staff employed by Texuna on permanent contracts, ensuring complete control over all resources. Texuna would dedicate a multi-disciplinary and highly experienced senior team for the JISC project. Texuna's commitment to providing high-quality solutions and services is reflected in the technical abilities of staff and focus on continual professional development. Texuna believes that the success of projects depends upon the competency and quality of staff resources. In order to ensure expertise, some training courses are mandatory (e.g. Software Quality Assurance), whilst others are required for specific roles and job types (e.g. PRINCE2 for project management, ITIL for support, OCJP or developers, ISEB for testing, etc.). All staff members are required to maintain an up-to-date knowledge of industry best practice through involvement with industry bodies like Intellect and Gartner and external certifications. 1. Requirements and feasibility analysis All of Texuna's business analysts are top honors graduates in computing and physical sciences. Technical skills include providing domain expertise, requirements gathering and analysis, and overall design. This experienced team engage in requirements gathering, consultation and analysis phases to ensure that the needs of implemented systems are known, understood and agreed. The team is also actively involved in academia, participating in research in conjunction with University College Cork (UCC) focusing on the field of business analysis and solution design. The team adopts an agile and flexible approach, offering clients improved service provision and performance benefits from effective system and service delivery. Texuna's Business Analysts and User Researchers focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. We also investigate historic audit trails (e.g. weblogs) for past usage behaviours to establish new hypothesis for testing. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements. As an example Texuna worked with Jisc across 3 independent business units and an estate of dozens of legacy systems on a 2-year enterprise data warehouse project. Texuna conducted a 4-month discovery phase to analyse all source systems, looking at governance, data owners and future directions for upgrades and data integration. Texuna conducted almost 100 interviews and more than a half dozen workshops across team boundaries to create a confirmed and shared information architecture for the business across more than 100 Jisc services to its members. This included helping the member team redesign the information delivery on a relaunched member portal. Texuna's staff engage fully with many stakeholders at all organisation levels. Texuna has 15+ years of analysis services in the Education sector, including reengineering data management solutions and responding to policy and provision changes and expansions. 2. Mobile development Texuna is actively working with a small number of startup operations to deliver websites with engaging content. These websites are either delivering help and support (Tweakaboo) or providing a useful budget tracking tool for Pupil Premium spend to busy schools and teachers (EduKit). Texuna's interactive projects include: • Tweakaboo - a mobile app that helps parents collect and organise precious moments documenting their childrens growth and development. • Indeemo - a mobile ethnography app and qualitative research platform that makes it easy to capture contextual, in-the-moment behaviours and insights that help them better understand their customers. • EduKit - an app for schools to gather well-being data through surveys and to manage the budget spend to increase the outcome of interventions. These are all mobile ready responsive applications that work on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Texuna's work with startups ensures up to date knowledge of the latest technologies and helps to migrate best practices to government projects. Server-side rendering of all work is managed via CSS to allow for easy updating and reflecting branding changes when needed. All of Texuna's public sector projects meet GDS standards. Texuna's architecture approach is to build in a REST API management component that will facilitate mobile application integration along with front end development. This ensures the delivery of an architecture that is mobile application capable from the start. 3. Scalable middleware Texuna's solutions are built using open source technologies turning it into a secure, robust and scalable (clustered) enterprise-level application, using industry standard protocols and open standards. Texuna's solutions are a cloud agnostic service, operable on-premise or within a public, private or hybrid cloud environment that can scale to tens of millions of users. It is also extensible with the ability to meet bespoke data capture requirements and accept custom RESTful integration services. Texuna has developed and delivered a cloud-based series of microservices for Irish mobile app start-up CheckMate and their client Muintir na Tire. The service is used for community neighborhood watch, with real-time communication alerts. Texuna migrated and retired a legacy system using a series of asynchronous services with API integration and message queues to manage the service delivery on AWS. Native mobile apps are available to users and a Single Page App is used for management and administration. The EduKit project for schools also uses microservices to scale nightly data uploads from hundreds of school SIMS. Texuna has a strong track record of developing scalable high availability solutions. As solutions grow and as demand increases, system resources may be incrementally added to maintain good response times. For example, Texuna's Identity Access Management platform has been configured and deployed as DfE Secure Access and integrated with eleven legacy DfE systems. At Go-Live, three services were integrated; this grew nearly fourfold over the years of the contract, with no adverse impact. The high availability configuration also allows the service to be tolerant of any failure in frontend or backend services. Texuna's longest established client, the NCTL (now DfE) ITTDMS solution is an example of Texuna's robust enterprise-level component-based solution that has grown, expanded and changed over more than 15 years to meet changing government policy and data management demands. Originally a single annual data collection for teacher training with associated reporting, ITTDMS grew into an enterprise data warehouse that managed more than 20 disparate datasets across more than 10 annual data collections, supporting 14 different user access portals. Texuna's solutions support a flexible data model and rules engine for the ability to add new identity attributes over time, with the ability to use SAML as an attribute distribution hub for specific integrated systems. This means new data can be captured over time, and rules put in place to share new data to different targets based on changing needs over time. Texuna has used this functionality extensively with DfE as legacy systems changed and migrated from different suppliers and as new systems	

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	Sector	Solution	Question	Template Response	Picture number
Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services Provide a brief overview of your experience	Texuna has 15+ years delivering software development, data management and reporting solutions to the Education Sector, with a broad range of clients including central government, Universities, private companies and EdTech startups including MOOC's like Alison.com. Texuna works closely with Teacher Training providers and schools to serve clients needs. Texuna is a strong advocate of open standards and user of open source tools and libraries to deliver web-enabled, high quality, fully functional Enterprise level solutions within tight timescales. Texuna's product deliveries range from small budget single solutions produced within a few weeks to satisfy a particular need such as a reporting dashboard or pilot data collection, to large scale data warehouse projects. Texuna has developed reusable frameworks as an asset that can be easily redeployed as needed.

Mobile application development
Texuna is actively working with a small number of startup operations to deliver websites with engaging content. These websites are either delivering help and support (Tweakaboo) or providing a useful budget tracking tool for Pupil Premium spend to busy schools and teachers (EduKit). Texuna's projects are successful because due to direct engagement with end users, implementing changes based on their feedback and stated business needs.

Texuna's interactive projects include:
• Tweakaboo - a mobile app that helps parents collect and organise precious moments documenting their childrens growth and development.
• Indeemo - a mobile ethnography app and qualitative research platform that makes it easy to capture contextual, in-the-moment behaviours and insights that help them better understand their customers.
• EduKit - an app for schools to gather well-being data through surveys and to manage the budget spend to increase the outcome of interventions.

These are all mobile ready responsive applications that work on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Texuna's work with startups ensures up to date knowledge of the latest technologies and helps to migrate best practices to government projects. Server-side rendering of all work is managed via CSS to allow for easy updating and reflecting branding changes when needed. All of Texuna's public sector projects meet GDS standards.

Texuna's architecture approach is to build in a REST API management component that will facilitate mobile application integration along with front end development. This ensures the delivery of an architecture that is mobile application capable from the start.

Website development
Texuna deliver web-enabled solutions, an example of which is the National Student Survey Dissemination Portal build for the Office for Students. The latest HTML 5 and CSS3 coding languages were made use of, with a site built on to of the bootstrap framework. The portal enables users to login and access NSS data relating to their own institution. The site contains user management and link to the backend database using JQuery and PHP which allows users to create custom reports to enable customers to create custom reports on the fly.

Texuna further help our client for this project though implementing a consultation portal using Drupal. This enables end-users to access the latest updates on proposed changes to be introduced, provides a means for them to add comments and ideas to improve the proposed work and to engage with the Office for Students on particular topics.

Web-based business process systems
Texuna are AWS consulting partners. Texuna has migrated legacy platforms, developed and hosted new applications on VMWare, AWS and Azure PaaS platforms for 5+ years. Texuna uses Ansible and Terraform to automate the infrastructure and platform configuration as software to give cloud portability. Texuna's development standards ensure code and network is protected from malware attack and vulnerabilities, with automated unit/integration testing for releases and penetration testing prior to live running - eg with Jisc and Oxford Brookes University.

Texuna delivers security and identity management, data integration, API-source provider, data registry, statutory report supplier, and sector data collector:
• Assisted with OFSTED/HESA/HEFCE submissions, data governance, management, analysis and reporting needs.
• Ran discovery workshops, technical development, ongoing support/advice, onsite training and service operations.
• Provided multiple solutions to University College Cork including a combined tech research centre.
• Implemented an EDW for Oxford Brookes University, working with Elusian Banner, E5 finance, SAPBO, Moodle VLE as well as learner analytics data and external market sources including Heidi+, DLHE and HESA data.
• Implemented a pipeline EDW for London Metropolitan University working with SITS, E5, VLE, NSS and DLHE data.
• Texuna recently delivered a hugely successful Jisc EDW on a fixed schedule and budget, demonstrating an ability to design and deploy a large and complex solution with tolerance for uncertainity within an agile environment. Texuna also delivered Jisc's Reporting Frameworks, utilised data from Jisc, HE/FE Providers and other relevant external sources (e.g. HESA).
• Texuna work with startup companies that are hyper-agile and super product-focused. As their technology partner, Texuna helps formalise their approach and help them prioritise feature scope creep by teaching them to put users first.
• Texuna helps startups like EduKit using stateless microservices to upload 100's of schools data nightly.

Texuna work with student, HE and schools data for many clients including:
• Office for Students NSS results dissemination portal: https://nss.texunatech.com/
• DfE GIAS: https://get-information-schools.service.gov.uk/
• DfE Secure Access - an access and authentication platform that provides single sign-on services to 11 DfE legacy systems
• Standards and Testing Agency ItemBank - an ItemBank of questions used to produce SATs tests for schools
• DfE (ex-NCTL) Performance Profiles and NQT survey data collection system to collect teacher training data from training providers.
• Jisc Enterprise Data Warehouse and member services, HESA returns and DLHE data. For HEIs,
• Texuna currently work with University College Cork and Oxford Brookes University, helping them manage and analyse student data from admissions, UCAS clearing, enrolment, attendance, participation, attainment, and destinations after graduation, compare UNISTATS data, do curriculum management and work placement data management. | |

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	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services Provide a description of your expertise and e	Texuna follow Disciplined Agile methodology to ensure user needs are met within the strategic objectives of the enterprise. Texuna deploys multi-disciplined teams and comfortably works with mixed client teams. Texuna has worked with client teams involving users such as ICT, data experts and statisticians, faculty, librarians, and non-academic staff with several Universities. For Jisc a data warehouse team was established and a governance process and an agile methodology was implemented which focused attention on the whole range of projects, teams and services within Jisc as an organisation with hundreds of employees. Texuna collaborate with client teams from the start to ensuring self-sufficiency after handover. All levels and functions were engaged to build awareness and understanding of the project and expected outcomes. Texuna has formalised the agile processes under ISO9001, ISO20000-1 and ISO27001 with BSI audits. Texuna use an agile delivery methodology focused on user needs. A Scrum approach is used with bi-weekly Sprints, Reviews and feedback from users, together with daily standups. The outcome of the Discovery analysis phase is to allocate the implementation tasks into time boxes. Solution components are implemented in a logical order suitable for on-time delivery - but also based on the RICE Framework (Reach-Impact-Confidence-Effort) so that quick wins and strategic priorities get attention early. This AGILE methodology runs numerous software development/data management/warehouse/analytics projects. Texuna has delivered over 20 GIAS (Get Information About Schools) Agile sprints with DfE using agile methodology. Texuna participates fully via tools such as Zoom, Slack and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation based on user stories and team communications. Daily standups are used to manage issues with bi-weekly sprint reviews and lessons-learned retrospectives ensuring scope is managed and that users are continually appraised and can provide feedback. Texuna's interactive project management, business analysis and DevOps approach provide robust early stakeholder engagement through agile workshops to embrace change. Certainty is guaranteed on high-risk projects, avoiding traditional software development pitfalls by reinforcing agile principles such as: • Collaboration (business project champion, product owner, developers, users) • Epics typically bounded inside timeboxes, balancing Prince2 gates with Agile delivery • User story, outcome-driven development • Continuous backlog grooming by ScrumMaster, Technical Architect, Product Owner • Production quality "definition of done" controlled by Technical Architect • Self-managed and organised teams with ScrumMaster coordination • 2-week sprints with retrospectives and product reviews • Story-pointed, incremental development with daily stand-ups Texuna's deployment methods have been refined for cloud-first agility. Continuous integration and deployment and automation to remove the complexity of setup/operation/improvement provide high performance, high availability clustered solutions. This represents the Texuna definition of agile SDLC, with frequent releases engaging users after each 2-week sprint and an early MVP deployment to production.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services Please provide a brief overview of the project	The delivery of Texuna services are tailored to the needs of customers and environment. This ranges from Agile methodologies to more structured PRINCE2 methodologies (managers certified PRINCE2 Practitioners). Each project with a customer is assigned a dedicated Project Manager and Account Manager, with regular formal reviews scheduled at least twice monthly (with the Project Manager) and twice annually (with the Account Manager). All of Texuna's deliverables in all aspects of business operations and services, with no exceptions, are planned, monitored and controlled through it's ISO 27001 Information Security Management System, ISO 9001 Quality Management System and ISO 20000-1 Service Management System (SMS), which are certified by BSI. A key aim of ISO 20000-1 is enhanced customer satisfaction by meeting customer and regulatory requirements. Texuna has a set of capabilities and processes to direct and control the activities and resources for the design, transition, delivery and improvement of services to fulfill the service requirements. Texuna's continually builds a culture of continuous improvement to: • Satisfying customer requirements efficiently, effectively and consistently. • Continually adding value to processes and all aspects of the business for the organisation and customer. • Delivering correct, defect free products to our customers on time and within budget. • Aligning activities with the values, purposes and strategic vision of Texuna. In similar prior work during delivery, Texuna have found an Agile 'Rolling Wave' methodology is extremely effective managing and delivering on needs. This Sufficient Up-Front Design (SUFD) approach involves initial discovery and envisioning exercises to drive the design of main User Stories, and prioritisation (via RICE framework) into Epics that are aligned to business needs and delivering business value. These Epics are then delivered over subsequent themed Rolling Waves (typically between 30-120 days long) where each waves involves detailed design to grooms a backlog of themed work. This analysis and requirement management is based on a top-down business driven requirements and bottom-up analysis of technical needs identified during Discovery. These combine according to complexity and business impact to give a priority score. Work is then delivered within the same rolling wave through Agile Sprints (usually 2 weeks in duration), with formal Sprint Reviews and constant customer engagement and feedback. Texuna have also found visual requirements workshops and prototyping key is similar prior work. During design, staff contribute to modelling and report design workshops, this gives early feeding back on high-fidelity prototypes. The modus operandi can be summarised as thing big, start small, get feedback often, iterate and improve. The Texuna project manager on similar work has the key function and accountability for: • Management of the resources allocated to the project. • To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverables. • To manage the internal communications and resource allocation and the work of the project team. Texuna assures effective project handover by: • Formal project induction and continuity process with participants especially where organisational and/or functional changes are envisaged. • Inclusion of key users from the kick-off phase, with a project collaboration environment to keep them involved in the project ownership, progress and deliverables to facilitate the handover. • Establish a stakeholder committee to steer direction and approvals, with formalised commitment of in-house managers, architects and third parties to join-up adjacent project streams, systems support staff and process owners. • Delivering a learning centre website with user-friendly documentation and handbooks, video tutorials, FAQs, discussion forums to capture 'tacit' knowledge. • Using show and tell sessions, in addition to sprint reviews and feedback, to address initiation hurdles. • Providing real-time first line support during the post go-live stabilisation period. Texuna's prior work has typically included hard deadlines, and Texuna has a very strong track record of on-time delivery. Texuna's close attention to the commitments that are have made and day-to-day management practices enables deadlines to be met.	
Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services The supplier shall confirm that, where appro	Texuna confirms that all JISC provided tools will be used to enable integration with existing projects. Texuna already work with JISC teams on EDW project following the agile methodology over the last 3 years. Texuna work with JISC collaboration tools and development workflows including Pivotal Tracker, Jira, BitBucket, GitHub, JenkinsCI continuous integration and deployment approach working with cloud-based infrastructure and networks defined in software code. Daily standups and bi-weekly scrums are used to collaborate and 'show me, don't tell me' sprint reviews are used to solicit feedback for ongoing User Research. Texuna uses lean design thinking to stay user-focused, and Kanban to drive continuous improvement.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services Confirm that you agree to follow Jisc's Secure (policies can be found here: https://drive.go	Texuna agree to follow Jisc's Secure Development Policy and Secure Development and Testing principals. Texuna already work with JISC development and IT teams for 3 years. Numerous architecture and system configuration reviews conducted by JISC senior persoNnel have been passed. Texuna are very aware of Jisc's Secure Development Policy (ISM-POL-006), and Secure Development and Testing principles (ISM-NOT-012) and these have been followed throughout all work over the past 3 years.

Moreover Texuna follow a formal secure development policy and development process that is audited and certified by BSI to ISO27001, ISO20000-1 and ISO9001. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data.

Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code is checked, validated and verified against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's QA team create and run tests for code and system vulnerabilities prior to any major production release. This review and validation ensure that code exhibits fundamental secure properties to include correctness, predictability, and attack tolerance.

Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles:
• Avoid highly bespoke permissions on low-level granularity (simplicity facilitiates better management)
• Encrypt or hash sensitive data where privacy is required
• Separate the management of user mapping to groups from the management of access permissions with groups
• Integrate to existing enterprise IAM if available (e.g. Active Directory)
• Secure private data through restricted database views for Business Intelligence tools.

Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported.

Safeguarding issues / data protection
Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following mechanisms are proposed as a minimum:
• Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines.
• Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition:
 - All data transmitted between the browser and the server via encrypted channel (SSLv3)
 - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply:
• Encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256
• A least privileged access control policy
• Strong password policy with the ability for users to change password if needed
• Step-up authentication with MFA for power users | |

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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services
			Provide a description of the software develo
			
			(policies can be found here: https://drive.go
				Quality assurance and security are fundamental to Texuna's processes. Texuna follows a formal secure development policy and development process that is audited and certified by BSI to ISO27001, ISO20000-1 and ISO9001. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data.
				
				Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code is checked, validated and verified against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's QA team create and run tests for code and system vulnerabilities prior to any major production release. This review and validation ensure that code exhibits fundamental secure properties to include correctness, predictability, and attack tolerance.
				
				Texuna solutions include 3 separate environments:
				• Development - New code is first deployed to the development environment so that it can be rigorously regression tested by the quality assurance team using test data. Test data is either provided by the client or may be obfuscated data processed to remove any personal or personally sensitive data.
				• UAT (User Acceptance Test) - Releases which are tested are deployed to the UAT environment for end-user / client testing usually against real data which is a copy of Production data so that Production data is not compromised. Access to the UAT environment is restricted to staff who have a need for access only.
				• Production. - Live, Production, data is always protected during the development and quality assurance processes. Deployment of releases to Production is only made once the quality assurance processes are successfully passed.
				
				Access to each of these environments is strictly controlled and open to only authorised users.
				
				Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles:
				• Avoid highly bespoke permissions on low-level granularity (simplicity facilitiates better management)
				• Encrypt or hash sensitive data where privacy is required
				• Separate the management of user mapping to groups from the management of access permissions with groups
				• Integrate to existing enterprise IAM if available (e.g. Active Directory)
				• Secure private data through restricted database views for Business Intelligence tools.
				
				Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported.
				
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				Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following mechanisms are proposed as a minimum:
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				• Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition:
				  - All data transmitted between the browser and the server via encrypted channel (SSLv3)
				  - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply:
				• Encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256
				• A least privileged access control policy
				• Strong password policy with the ability for users to change password if needed
				• Step-up authentication with MFA for power users	

Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services Please confirm that services you build or wo	All aspects of the user interface and page-flows can be customised to Jisc's branding and UX standards. Texuna are fully able to support brand identity, future changes and differing customised displays for particular user groups or user profiles. Texuna has experience of delivery branded to client's standards solutions in shortest period of time e.g. Ofsted Fostering Data Collection portal was delivered in 3 months with full compliance to Ofsted branding and GDS UX standards. Changes to branding can also be turned around quickly if needed, e.g. changing branding in line with changes of government/government policy. These are all mobile ready responsive applications that work on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Texuna's work with startups ensures up to date knowledge of the latest technologies and helps to migrate best practices to government projects. Server-side rendering of all work is managed via CSS to allow for easy updating and reflecting branding changes when needed. All of Texuna's public sector projects meet GDS standards.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Describe how your services meet each specif If you don't have experience in any of the sp	Texuna can conform experience in all areas listed. In more detail: Expertise in HE and FE sectors data, BI and Learning Analytics Texuna is dedicated to UK HE data management and BI solutions with customer service at the core. Texuna delivers data and reporting solutions to the HE and FE Sector blending lessons learned over 15 years of continuous data and BI service delivery. This includes EDWs, repeatable analytics data pipelines and analytics services to central sector bodies, HEI/FEC/Alternate providers and Schools. Texuna can demonstrate success in: * High profile business critical analytics such as sector performance tables and funding on behalf of NCTL. * In quantitative and qualitative analytics through the National Student Survey analytics service on behalf of the Office for Students (OfS) ** These examples include the provision of analytics and report direct to hundreds of HE and FEC providers, along with the inclusion of 1st - 3rd line service desks that provide support and advice to user with data interpretation and analytics. * Digital transformation services that re-orchestrate data pipelines and upskilling internal capabilities within HEIs, such as Oxford Brookes University and London Metropolitan University to deliver analytics ranging from: ** Advanced financial modelling and evaluation of course, module and student service value; through to ** Learning analytics with machine learning and predictive analytics (including codeless interfaces) for the business to understand the value of various engagements, the most effective student learning methods and triggers for interventions. Texuna have delivered data warehouses, organisation-wide governance, collaborative reporting frameworks and data visualisations to both HE sector bodies and HE institutions. In fact Texuna worked with Jisc to deliver their own Enterprise Data Warehouse. This gives Texuna intimate knowledge of HE: * Source systems (ranging from in-house built Oracle SRS, to COTS SRSs such as Banner and SITS, VLEs including Moodle and Blackboard, several library systems and big data and IOT (Eduroam, EZProxy logs etc) to name a few) * Orchestrating enterprise dataflows (ETL, data warehousing and dimensional modelling) * Analysis and delivery of business intelligence through visualisations. * Discovery methods and tools that uncover the true needs of users, as well as define technical and implementation approaches to deliver on needs. Having delivered collaborative organisation-wide Learning Analytics reporting frameworks for Providers based on the UDD, Texuna are fully aware of the value and application of LA. This includes Advance Behaviour Cognition research, identifying successful learning behaviours, understanding the impact of engagements, and the need for both interventions and "nudging" behaviour changes after students at risk or potentially underachieving are identified. Through data warehousing work with Providers, Texuna are also accomplished in intelligent campus data, such as web/access logs or work with Eduroam and Janet on behalf of Jisc. Most recent work has also been leveraging the power of machine learning through data mining initiatives with cutting edge predictive analytics for LA. Understanding commercial / HE systems With a history as a vendor-neutral system integrator delivered services offering "best of breed" features, Texuna is conversant in a range of Technology and systems. Texuna works within client guidlines to design and deliver based on understanding needs and leveraging existing skills and investments. This ranges from expertise in Linux and Windows based operating systems, DevOps from qualified AWS Consulting Partner, experienced Azure practitioner and prior history of on-prem hosting, data preparation and orchestration tools such as Alteryx, Pentaho and Talend, through to data visualisation tools such as Tableau, Qlik, Power BI to name a few. Through HE EDW and BI project Texuna have a strong understanding of local HE systems and data. To name a few, these range from inhouse built Oracle SRS, to COTS SRSs such as Banner and SITS, VLEs including Moodle and Blackboard, several library systems, big data and IOT from Eduroam to EZProxy logs (journals usage), as well as HR and finance systems including Core, SAP, e5 and Unit4 Business World. The understanding for ethics and data protection in analytics From work within the NHS, HE and Schools, Texuna is well aware of both the information security and the ethical and organisational issues that must have due consideration and decisions when exploiting analytics. In much of Texuna's prior work, there is a remit and need to establish formal organisation-wide data governance, especially where work leads to existing data business processes needing to change. Texuna's approach is to ensure this governance includes explicit recognition of both legal obligations and 'digital ethics', so values and moral principles for the conduct of digital interactions and analytics are evaluated and accounted for. Complete transparency and clear organisation-wide policies are essential to ensure the secure and ethical use of data. Specifically, in HE EDW learning analytics work, Texuna has previously used and referred HEIs to Jisc's Code of practice to ensure learning analytics is carried out responsibly, appropriately and effectively. Texuna's ethos is to always firstly answer 'should this be reported?' well before 'can this be reported'. Texuna recognises its GDPR obligations as a data processor managing customer data with personal information, and hold data protection as a priority throughout all business operations. BSI has audited each of Texuna's offices individually over the last ten years for ISO/IEC 27001. A very robust approach to system and data security has been demonstrated and certified by BSI. The approach has also been vetted by customers, including the Department for Education and through RMADS, for managing sensitive personally identifiable information. Texuna have embedded a robust security culture, reflected in solutions and working practices, where data protection and individuals' privacy are of utmost importance. It is also worth highlighting that Texuna are additionally certified to ISO 9001 for Quality Management and ISO 20000-1 for Service Management by the BSI. Understanding and working with diverse institutional roles Texuna staff have years of expertise in producing materials and visualisations explaining complex issues to a variety of stakeholders within institutions. Texuna first began advising providers on complex data quality, analytics and funding matters through work on behalf of the NCTL back in 2004. Texuna is now running sector wide webinars on behalf to the OfS discussing student satisfaction analytics, and working with academics and professional services within HEIs on machine learning initiatives for learning analytics. In addition to depth, this example along with EDW work highlights the breadth of expertise. Texuna's work with HEIs spans from document analysis and prioritising analytical needs from across the enterprise with senior leaders, through to the resolution of technical issues with source system data acquisition and processing of big data/IoT with technical staff and 3rd party system providers. Recent work at Oxford Brooks University demonstrates the value and aptitude in cultivating and supporting community of practice around Learning Analytics. Texuna has fostered at OBU a community of LA practice joining professional services, researcher and faculty staff. They share a concern passion for the value of LA and the group not	

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Provide three examples of successful outputs	Oxford Brookes University (2018 - Date): Texuna worked with Oxford Brookes University to introduce: • A Data Futures compliant Enterprise Data Warehouse (EDW) • Organisation-wide data asset management, with versioned data and slowly changing dimensions allowing trusted, authoritative and repeatable analysis. Clear data definitions, principles and stewardship is supported by governance tools, allowing for common understanding, consistent reporting and quality to be addressed, in turn promoting cultural changes • Collaborative organisation-wide reporting, including Learning Analytics. A 12-month discovery and implementation project delivered orchestrated dataflows from ~20 sources including SRS, VLE, CRM, access logs, Finance, HR, statutory returns and other sources. Data flows are supported by a governance framework and deliver 15+ subject specific data marts with visualisations delivered in QlikView. This includes 5 data marts specifically for the purpose of learning analytics. Particular highlights include: • A consolidated mart incorporating engagement data from library systems (both physical and electronic), VLE, SRS, careers, academic skills service and statutory returns. This gives a holistic understanding of student interactions with key services and resource usage, leading to better informed decisions around value for money, student journeys and learning methods • Insights into the value of assessment and feedback reviews by students, which was a particular area of interest and student dissatisfaction • The application of Data Mining and Predictive analytics, leveraging big/IoT data, giving insights into expected outcomes and need for intervention • A UUD view and output from the EDW DDS/ODS. Further reporting frameworks have greatly increased capabilities with real-time business intelligence from a single source of truth, including: • An understanding of the study behaviours, student learning patterns and journeys; • Early sight and transparency of data returns (if a student starts today, their impact on external reporting and returns is shown tomorrow); • New insights into competitive position, understanding both internal and sector performance (including comparative and benchmarking analytic such as entry tariff, award, employment, etc). • Alignment of finance, staff and student data for derivation of key metrics such as staff-student ratios; • An internal understanding and focus on external metrics (around 80 external derived measures, such as widening participation flags, NSS markers, TEF continuation, most important post study activity, etc); • The tracking of admissions to target and student fees to module/course/faculty level, understanding both course profitability and future income scenarios models. • Joined up survey and unstructured data for sentiment analysis of student and applicant opinions. Jisc (2016 - Date): Texuna engaged in a full digital transformation project with Jisc to identify detailed technical requirements and revised business processes. This included a full systems and services audit, as well as technology training, and immersion sessions as part of the implementation phase. The resulting Enterprise Data Warehouse and Collaborative Reporting Frameworks designed delivered flexibility both in the immediate term as well as for the future. The chosen solutions married existing tools e.g. Alteryx, Tableau and SAP Business Objects, and also introduced some new tools, for example, Amazon Redshift, and Pentaho for Extract, Transform and Load (ETL) processing to ensure future proofing and ease of customisation as requirements evolved. A coherent service and finance reporting framework was designed and delivered to: • Provide stakeholder (including HEIs and FECs) dashboards and reports on service usage (e.g. student usage of Eduroam or Journals and archives etc) • Support board and management reporting • Deliver statutory financial reporting • Supply business critical operational performance reports • Enable business intelligence initiatives • Maximise the value previously disparate data sources • Ensure organization-wide standardised reporting • Greatly improve understanding and governance of data. The project was delivered within budget and within the contracted timeframe, with the effective solution and partnership between Jisc and Texuna still active today. The Office of Students (2015 - Date) Texuna worked with the OfS and providers to deliver a best practice Repeatable Analytical Pipeline that analyses and disseminates the National Student Survey quant and qual data direct to UK HEIs, FECs and APs. The NSS represents extremely high value and profile data on student satisfaction. Annually, tens of thousands of quality assured reports are created and disseminated to providers, including the TEF metrics and processing of student opinion qualitative data. In addition to reports created for the sector, a portal with a customised Mondrian OLAP engine a D3 visualisations allows for further analysis, including full searching and reporting on both internal quant and qual data as well as publicly available data. Texuna prove a fully managed service for the OfS, this includes a first-line service desk that advises and supports HEI and FEC with analysis and data interpretation. Success is demonstrated by the following: • Consistent on time publication of this highly valuable analytics on student satisfaction to inform operational and strategic planning • Adaption of the service over time to incorporate considerable changes to data, reporting and stakeholders/customers • Measurable reductions in burdens and costs • Increased year-on-year data use and report creation across the sector since Texuna's took over the service.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Describe the structures that your company h	Texuna has staff development, HR, planning and resource capacity policies, processes and procedures are in place, which are certified by BSI to ISO 9001 and 20000-1 standards, to ensure expertise in delivering Texuna's services. This includes formal long, medium and short term planning, monitoring and control of capacity. As an example, weekly automated monitoring and exception reporting of any predicted slippage that may exceed thresholds are reviewed at cross project/function Operations Meetings reviewing service delivery. If there is any potential slippage (or acceleration) of any of the planned tasks within any projects this is flagged and addressed. Where there is a risk of slippage, mitigation steps are discussed and the approach to managing the slippage is agreed. This can result in reprioritisation or reallocation of resources to address any issues of significant concern so that we maintain our customer service levels. Through prior work collocated at Jisc offices for extended periods, Texuna's teams have shown their ability to become an extension of Jisc's own team. During such work, Texuna's methodologies, working practices and tools have been tailored to complement both the environment and Jisc's own standard. This expedites effective team working and builds a detailed knowledge base at Jisc which informs future work and progression.	
Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Please describe how your organisation has p	The delivery of Texuna services are tailored to the needs of customers and environment. This ranges from Agile methodologies to more structured PRINCE2 methodologies (managers certified PRINCE2 Practitioners). Each project with a customer is assigned a dedicated Project Manager and Account Manager, with regular formal reviews scheduled at least twice monthly (with the Project Manager) and twice annually (with the Account Manager). All of Texuna's deliverables in all aspects of business operations and services, with no exceptions, are planned, monitored and controlled through it's ISO 27001 Information Security Management System, ISO 9001 Quality Management System and ISO 20000-1 Service Management System (SMS), which are certified by BSI. A key aim of ISO 20000-1 is enhanced customer satisfaction by meeting customer and regulatory requirements. Texuna has a set of capabilities and processes to direct and control the activities and resources for the design, transition, delivery and improvement of services to fulfill the service requirements. Texuna's continually builds a culture of continuous improvement to: • Satisfying customer requirements efficiently, effectively and consistently. • Continually adding value to processes and all aspects of the business for the organisation and customer. • Delivering correct, defect free products to our customers on time and within budget. • Aligning activities with the values, purposes and strategic vision of Texuna. In similar prior work during delivery, Texuna have found an Agile 'Rolling Wave' methodology is extremely effective managing and delivering on needs. This Sufficient Up-Front Design (SUFD) approach involves initial discovery and envisioning exercises to drive the design of main User Stories, and prioritisation (via RICE framework) into Epics that are aligned to business needs and delivering business value. These Epics are then delivered over subsequent themed Rolling Waves (typically between 30-120 days long) where each wave involves detailed design to grooms a backlog of themed work. This analysis and requirement management is based on a top-down business driven requirements and a bottom-up analysis of technical needs identified during Discovery. These combine according to complexity and business impact to give a priority score. Work is then delivered within the same rolling wave through Agile Sprints (usually 2 week in duration), with formal Sprint Reviews and constant customer engagement and feedback. Texuna have also found visual requirements workshops and prototyping key is similar prior work. During design, staff contribute to modelling and report design workshops, this gives early feeding back on high-fidelity prototypes. The modus operandi can be summarised as thing big, start small, get feedback often, iterate and improve. The Texuna project manager on similar work has the key function and accountability for: • Management of the resources allocated to the project. • To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverables. • To manage the internal communications and resource allocation and the work of the project team. Texuna assures effective project handover by: • Formal project induction and continuity process with participants especially where organisational and/or functional changes are envisaged. • Inclusion of key users from the kick-off phase, with a project collaboration environment to keep them involved in the project ownership, progress and deliverables to facilitate the handover. • Establish a stakeholder committee to steer direction and approvals, with formalised commitment of in-house managers, architects and third parties to join-up adjacent project streams, systems support staff and process owners. • Delivering a learning centre website with user friendly documentation and handbooks, video tutorials, FAQs, discussion forums to capture 'tacit' knowledge. • Using show and tell sessions, in addition to sprint reviews and feedback, to address initiation hurdles. • Providing real-time first line support during the post go-live stabilisation period. Texuna's prior work has typically included hard deadlines, and Texuna has a very strong track record of on-time delivery. Texuna's close attention to the commitments that are have made and day-to-day management practices enables deadlines to be met.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Confirm that you agree to follow Jisc's Secure (policies can be found here: https://drive.go	Texuna agree to follow Jisc's Secure Development Policy and Secure Development and Testing principles. Texuna already work with JISC development and IT teams for 3 years. Numerous architecture and system configuration reviews conducted by JISC senior persoNnel have been passed. Texuna are very aware of Jisc's Secure Development Policy (ISM-POL-006), and Secure Development and Testing principles (ISM-NOT-012) and these have been followed throughout all work over the past 3 years. Moreover Texuna follow a formal secure development policy and development process that is audited and certified by BSI to ISO27001, ISO20000-1 and ISO9001. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data. Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code is checked, validated and verified against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's QA team create and run tests for code and system vulnerabilities prior to any major production release. This review and validation ensure that code exhibits fundamental secure properties to include correctness, predictability, and attack tolerance. Texuna system design defaults to "nothing-accessible and everything auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: • Avoid highly bespoke permissions on low-level granularity (simplicity facilitates better management) • Encrypt or hash sensitive data where privacy is required • Separate the management of user mapping to groups from the management of access permissions with groups • Integrate to existing enterprise IAM if available (e.g. Active Directory) • Secure private data through restricted database views for Business Intelligence tools. Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported. Safeguarding issues / data protection Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following mechanisms are proposed as a minimum: • Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines. • Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition: - All data transmitted between the browser and the server via encrypted channel (SSLv3) - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply: • Encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256 • A least privileged access control policy • Strong password policy with the ability for users to change password if needed • Step-up authentication with MFA for power users	

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Where relevant to the requirement listed ab (policies can be found here: https://drive.go	Quality assurance and security are fundamental to Texuna's processes. Texuna follows a formal secure development policy and development process that is audited and certified by BSI to ISO27001, ISO20000-1 and ISO9001. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data. Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code is checked, validated and verified against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's QA team create and run tests for code and system vulnerabilities prior to any major production release. This review and validation ensure that code exhibits fundamental secure properties to include correctness, predictability, and attack tolerance. Texuna solutions include 3 separate environments: • Development - New code is first deployed to the development environment so that it can be rigorously regression tested by the quality assurance team using test data. Test data is either provided by the client or may be obfuscated data processed to remove any personal or personally sensitive data. • UAT (User Acceptance Test) - Releases which are tested are deployed to the UAT environment for end-user / client testing usually against real data which is a copy of Production data so that Production data is not compromised. Access to the UAT environment is restricted to staff who have a need for access only. • Production. - Live, Production, data is always protected during the development and quality assurance processes. Deployment of releases to Production is only made once the quality assurance processes are successfully passed. Access to each of these environments is strictly controlled and open to only authorised users. Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: • Avoid highly bespoke permissions on low-level granularity (simplicity facilitates better management) • Encrypt or hash sensitive data where privacy is required • Separate the management of user mapping to groups from the management of access permissions with groups • Integrate to existing enterprise IAM if available (e.g. Active Directory) • Secure private data through restricted database views for Business Intelligence tools. Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported. Safeguarding issues / data protection Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following mechanisms are proposed as a minimum: • Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines. • Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition: - All data transmitted between the browser and the server via encrypted channel (SSLv3) - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply: • Encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256 • A least privileged access control policy • Strong password policy with the ability for users to change password if needed • Step-up authentication with MFA for power users	

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Jisc		Research and Development Consultancy Framework 2019	Lot 8. Data, text mining and data visualisatio Please describe your relevant expertise in da	Texuna has plentiful experience in working with data, text mining and data visualisation projects. Texuna has available staff with 5+ years experience in data visualisation, with SAPBO, Qlik, Tableau, PowerBI, Quicksight and Pentaho BI skills. Texuna delivers trend graphs, comparative analysis, legaue tables, word walls. As an example, Texuna delivered a unified dashboard of over 100 Jisc services to their Members Portal via Tableau. Texuna has configured Qlicksense dashboards for clients to anlyse patient survey data including: Individual Analysis, Comparison, Sector Analysis, and Qualitative Analysis. In addition, Texuna has experience in connecting visualisations with data science packages (R and Python) to create meaningful insights.

Texuna has a strong history of working with universities, supporting in-house analysis on SAPBO, Qlickview and PowerBI. Texuna has worked with Oxford Brookes University since 2018 to build a Data Futures compliant Enterprise Data Warehouse (EDW), using data mining and predictive analytics, leveraging big/IoT data and giving insights into expected outcomes and needs for intervention.

Texuna has worked with The Office for Students (OfS) to deliver a best practice Repeatable Analytical Pipeline that analyses and disseminates the National Student Survey quantitative and qualitative data direct to UK HEIs, FECs and APs. The NSS represents extremely high value and profile data on student satisfaction. Annually, tens of thousands of quality assured reports are created and disseminated to providers, including the TEF metrics and processing of student opinion qualitative data. In addition to reports created for the sector, a portal with a customised Mondrian OLAP engine a D3 visualisations allows for further analysis, including full searching and reporting on both internal quant and qual data as well as publicly available data. In addtion, Texuna have processed and filtered qualitive datasets to protect the anonymity of students. Sentiment analysis can be carried out on the qualitive data showing comments across a variety of NSS attributes by positive, negative, and institution own questions. Users have the ability to fully search for qualitivate information based on keywords that derive all inflections for further analysis.

Through working with Gerald and the implementation of the Texuna eDiscovery platform, data and text mining was automated, with large volumes of data being parsed for use by the law firm ahead of a UK high court case.

Texuna's staff are cross-trained and the staff members who directly participated in these listed projects are still working in Texuna. The experience gathered in these various projects can be utilised to address Jisc's needs, and the staff in question will be able to work directly with Jisc in a consultancy role as required. | |

					Picture number

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Data flows are supported by a governance framework and deliver 15+ subject specific data marts with visualisations delivered in QlikView. This includes 5 data marts specifically for the purpose of learning analytics. Particular highlights include: • A consolidated mart incorporating engagement data from library systems (both physical and electronic), VLE, SRS, careers, academic skills service and statutory returns. This gives a holistic understanding of student interactions with key services and resource usage, leading to better informed decisions around value for money, student journeys and learning methods • Insights into the value of assessment and feedback reviews by students, which was a particular area of interest and student dis-satisfaction • The application of Data Mining and Predictive analytics, leveraging big/IoT data, giving insights into expected outcomes and need for intervention • A UUD view and output from the EDW DDS/ODS. Further reporting frameworks have greatly increased capabilities with real-time business intelligence from a single source of truth, including: • An understanding of the study behaviours, student learning patterns and journeys; • Early sight and transparency of data returns (if a student starts today, their impact on external reporting and returns is shown tomorrow); • New insights into competitive position, understanding both internal and sector performance (including comparative and benchmarking analytic such as entry tariff, award, employment, etc). • Alignment of finance, staff and student data for derivation of key metrics such as staff-student ratios; • An internal understanding and focus on external metrics (around 80 external derived measures, such as widening participation flags, NSS markers, TEF continuation, most important post study activity, etc); • The tracking of admissions to target and student fees to module/course/faculty level, understanding both course profitability and future income scenarios models. • Joined up survey and unstructured data for sentiment analysis of student and applicant opinions. **Rosgosstrakh - RGS Group (2017 - 2018)** Reporting on profitability has always been complicated for RGS, one of the largest insurers in Russia, because all of the data required across contract premiums, damage claims, contracts and customers was spread across multiple operational systems, each with dozens of terabytes of data. Previous consolidation attempts based on manual effort was time consuming and led to data issues that were hard to pick up in a timely manner. Delays result in major issues across RGS legal entities. Texuna was brought in as a Hitachi Data Systems partner to find a workable solution that addressed this problem, with the following project objectives and deliverables: Objectives 1) Integrate "big data" volumes in a DWH (data warehouse) and deliver a single point of truth for the whole business. 2) Produce profitability insights in a dedicated data mart on a "per covered risk" level for the entire business. 3) Clients, contracts, programmes and projects are analyzed on per-covered-risk basis giving detailed understanding how the group should package and price the services being offered to customers. 4) Establish interfaces to 3rd party systems to enable rapid extraction of data from the DWH Deliverables 1) Business analysis and data modelling of big data DWH based on Daniel Linstedt's Data Vault 2.0 methodology for data lakes. 2) Development of ETL code for data integration and big data processing. 3) Tens of Terabytes scale historic data load. 4) Reporting framework data mart interrogating multi-terabyte scale data. 5) Physical infrastructure for enterprise level Big Data Warehouse. 6) Hadoop cluster deployment and configuration using Cloudera bundle The solution was to deliver a DWH prototype within 90 days that efficiently load and store over 50TB of source data, ensuring that data is versioned and audited with historic snapshots provided. The solution used technologies such as: • Cloudera Hadoop 5.11 including Impala, Hive, Hue, Oozie, Sentry, YARN, and ZooKeeper services • Pentaho Data Integration ETL tool • Pentaho Business Analytics reporting platform • Tungsten Replicator change data capture application Texuna deployed a live Big Data DWH within 4 months, integrating and importing dozens of terabytes of data, delivering to RGS their first data mart for car insurance profitability reporting. The project was completed on time and within budget. **Gerald Metals SA (2016 -> 2017)** Provision of SaaS of the Texuna eDiscovery platform allowing for the preparation of disclosure for a nine-figure US$ arbitration and parallel court action to be heard in the UK high courts. The data came from multiple sources and custodians, including but not limited to: mailboxes, SMS, and WhatsApp messaging. Texuna provided a solution that comprehensively indexed the trail of correspondence and attachments across multiple object types, allowing for easy identification of keywords and custodians. The generated matrix follows the EDRM model, preserving the source objects, while allowing reviewers to flag/tag objects as required according to client-led requirements.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 8. Data, text mining and data visualisatio Please describe how your organisation has p	The delivery of Texuna services are tailored to the needs of customers and environment. This ranges from Agile methodologies to more structured PRINCE2 methodologies. In similar prior work with institutions, Texuna have found an Agile 'Rolling Wave' methodology is extremely effective in managing and delivering on needs. This Sufficient Up-Front Design (SUFD) approach involves initial discovery and envisioning exercises to drive the design of main User Stories, and prioritisation (via RICE framework) into Epics that are aligned to business needs and delivering business value. These Epics are then delivered over subsequent themed Rolling Waves (typically between 30-120 days long) where each wave involves detailed design to groom a backlog of themed work. This analysis and requirement management is based on a top-down business driven requirements and a bottom-up analysis of data sources and quality during Discovery. These combine according to complexity and business impact to give a priority score. Work is then delivered within the same rolling wave through Agile Sprints (usually 2 week in duration), with formal Sprint Reviews and constant customer engagement and feedback. Texuna have also found visual requirements workshops and prototyping key is similar prior work. During design, staff contribute to modelling and report design workshops, this gives early feeding back on high-fidelity prototypes from orchestrating dataflows through to visual designs. The modus operandi can be summarised as think big, start small, get feedback often, iterate and improve. The Texuna project manager has the key function and accountability for: • Management of the resources allocated to the project. • To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverables. • To manage the internal communications and resource allocation and the work of the project team. Texuna assures effective project handover by: • Formal project induction and continuity process with participants especially where organisational and/or functional changes are envisaged. • Inclusion of key users from the kick-off phase, with a project collaboration environment to keep them involved in the project ownership, progress and deliverables to facilitate the handover. • Establish a stakeholder committee to steer direction and approvals, with formalised commitment of in-house managers, architects and third parties to join-up adjacent project streams, systems support staff and process owners. • Delivering a learning centre website with user friendly documentation and handbooks, video tutorials, FAQs, discussion forums to capture 'tacit' knowledge. • Using show and tell sessions, in addition to sprint reviews and feedback, to address initiation hurdles. • Providing real-time first line support during the post go-live stabilisation period. Texuna's prior work has typically included hard deadlines, and they have a very strong track record of on-time delivery. Close attention to the commitments that Texyna have made and day-to-day management practices enable these deadlines to be met.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services Please describe your relevant expertise testi	Texuna's project life cycle is modelled around Test Driven Development and Agile methodology. This provides a process of constant testing and rebuilding within iterative development sprints. This also allows the company to implement a constant quality control regime. Each iteration in the development phase stimulates the application with a series of tests to check if the objectives have been met and quality is being maintained. In addition, Texuna has senior testers with 10+ years of experience in manual and automated testing. We automate regression testing against all code commits. Texuna migrate continuously to improve, using modern testing frameworks such as: • FitNesse • Canoo Webtest • Watir • PyTest Selenium and Allure In areas to evaluate User Experience (UX) and undertaking User Acceptance Testing (UAT) with 3rd parties, Texuna have, with Jisc and Ofsted as examples, worked alongside the respective teams on a daily-basis with joint responsibility for delivery of some releases. This included active coaching and mentoring for the Jisc staff at each stage of the development cycle from requirements to testing. Texuna identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives. The Ofsted Fostering Data Collection system is a responsive web-based application went into public beta in May 2018. It was designed and tested to 'AA' level (W3C WCAG2.0). Texuna used WAI-ARIA features to improve accessibility for digital inclusiveness as per GDS guidelines. Test scenarios included: • CSS is turned off • Functionality via keyboard shortcuts; • Non-text content has text alternatives; • Functionality remains usable without JavaScript. All testing work is managed and maintained using clear documentation and processes. Texuna's test plans will contain functional and non-functional testing by default. Usually, it includes performance and security testing which will be performed by experienced testers. As an example, for Indeemo, Texuna performed deep web-application security testing. As a result, the customer has signed a contract with a large client for using its application. Usability and Documentation testing are carried out during automatic test cases preparation phase. Also, the automated tests allow checking of documentation/user guides to ensure content is not changed or, where it is changed, to highlight changes. By ensuring all of these steps and techniques described above, Texuna have aimed to mitigate the risks involved due to lack of testing or expertise.	
Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services Please provide three examples of successful	On summer 2018 user management functionality was changed on the National Student Survey portal which is the solution provided to the Office for Students (OfS). The following features were implemented: new user creation process, activation, forgotten and expiration passwords. Furthermore, the site was updated to feature new UI elements and improve scalability across different devices (desktop, tablet, and mobile). Texuna QA performed deep exploratory testing of new user features learning them and continuously changing test cases. Few major bugs were found and fixed. The subsequent testing was completed by Capita without finding major and critical vulnerabilities. In order to effectively check the new UI updates and ensure cross-device/browser compatibility, tests were conducted on all leading browsers (Chrome, Firefox, Edge, IE) and variants. This was done manually and by integrating Selenium (a framework for automatic tests). This provided significant benefits to the users of the system to ensure breaches and security concerns were not posed. In addition, users were able to access the NSS data across a wide variety of devices with no impact to performance. For the PHE project, Texuna delivered a longitudinal epidemiology patient record database containing 50+-year-old radiology dataset. Complex data feed manipulation via reprogrammable javascript functions provides flexibility to independently load, match and reload data feeds. To test this complex import procedure based on many rules written in user stories for each import, Texuna created test framework which allowed all test cases to be stored, providing full test coverage in one place, generating feeds for all imports automatically and providing analysed fail/pass. All acceptance criteria were taken from user stories and meetings with customer. No bugs relating to user stories of import rules were found by the customer. This added value for the customer by ensuring the patient record system is robust; providing reliability with their users medical records. This also facilitated the operational and diagnostic processes of the users. Regular performance testing was carried out on the DfE's Secure Access. Besides standard user login scenarios by different services, it included high load password reset scenarios, such as adding new users, approver claim, new password selection process. These processes had a total sum of ~ 2600 password operations per hour 'out of the box'. This performance exceeded requirements (up to 2000 password resets per hour). Full reports were prepared after each performance iteration. Reports contained full performance testing process starting with requirements, architecture/environment and finishing detailed results and conclusions, and were shared with the project team.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services Describe the structures that your company h	Texuna has staff development, HR, planning and resource capacity policies, processes and procedures are in place, which are certified by BSI to ISO 9001 and 20000-1 standards, to ensure expertise in delivering Texuna's services. This includes formal long, medium and short term planning, monitoring and control of capacity. As an example, weekly automated monitoring and exception reporting of any predicted slippage that may exceed thresholds are reviewed at cross project/function Operations Meetings reviewing service delivery. If there is any potential slippage (or acceleration) of any of the planned tasks within any projects this is flagged and addressed. Where there is a risk of slippage, mitigation steps are discussed and the approach to managing the slippage is agreed. This can result in reprioritisation or reallocation of resources to address any issues of significant concern so that we maintain our customer service levels. Through prior work collocated at Jisc offices for extended periods, Texuna's teams have shown their ability to become an extension of Jisc's own team. During such work, Texuna's methodologies, working practices and tools have been tailored to complement both the environment and Jisc's own standard. This expedites effective team working and builds a detailed knowledge base at Jisc which informs future work and progression.	
Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services Please provide a brief overview of how your	The delivery of Texuna services are tailored to the needs of customers and environment. This ranges from Agile methodologies to more structured PRINCE2 methodologies (managers certified PRINCE2 Practitioners). Each project with a customer is assigned a dedicated Project Manager and Account Manager, with regular formal reviews scheduled at least twice monthly (with the Project Manager) and twice annually (with the Account Manager). All of Texuna's deliverables in all aspects of business operations and services, with no exceptions, are planned, monitored and controlled through it's ISO 27001 Information Security Management System, ISO 9001 Quality Management System and ISO 20000-1 Service Management System (SMS), which are certified by BSI. A key aim of ISO 20000-1 is enhanced customer satisfaction by meeting customer and regulatory requirements. Texuna has a set of capabilities and processes to direct and control the activities and resources for the design, transition, delivery and improvement of services to fulfill the service requirements. Texuna's continually builds a culture of continuous improvement to: • Satisfying customer requirements efficiently, effectively and consistently. • Continually adding value to processes and all aspects of the business for the organisation and customer. • Delivering correct, defect free products to our customers on time and within budget. • Aligning activities with the values, purposes and strategic vision of Texuna. In similar prior work during delivery, Texuna have found an Agile 'Rolling Wave' methodology is extremely effective managing and delivering on needs. This Sufficient Up-Front Design (SUFD) approach involves initial discovery and envisioning exercises to drive the design of main User Stories, and prioritisation (via RICE framework) into Epics that are aligned to business needs and delivering business value. These Epics are then delivered over subsequent themed Rolling Waves (typically between 30-120 days long) where each wave involves detailed design to grooms a backlog of themed work. This analysis and requirement management is based on a top-down business driven requirements and a bottom-up analysis of technical needs identified during Discovery. These combine according to complexity and business impact to give a priority score. Work is then delivered within the same rolling wave through Agile Sprints (usually 2 week in duration), with formal Sprint Reviews and constant customer engagement and feedback. Texuna have also found visual requirements workshops and prototyping key is similar prior work. During design, staff contribute to modelling and report design workshops, this gives early feeding back on high-fidelity prototypes. The modus operandi can be summarised as thing big, start small, get feedback often, iterate and improve. The Texuna project manager on similar work has the key function and accountability for: • Management of the resources allocated to the project. • To manage the communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to taking a lead role in ensuring that the requirements are completely understood and that they are translated exactly into deliverables. • To manage the internal communications and resource allocation and the work of the project team. Texuna assures effective project handover by: • Formal project induction and continuity process with participants especially where organisational and/or functional changes are envisaged. • Inclusion of key users from the kick-off phase, with a project collaboration environment to keep them involved in the project ownership, progress and deliverables to facilitate the handover. • Establish a stakeholder committee to steer direction and approvals, with formalised commitment of in-house managers, architects and third parties to join-up adjacent project streams, systems support staff and process owners. • Delivering a learning centre website with user friendly documentation and handbooks, video tutorials, FAQs, discussion forums to capture 'tacit' knowledge. • Using show and tell sessions, in addition to sprint reviews and feedback, to address initiation hurdles. • Providing real-time first line support during the post go-live stabilisation period. Texuna's prior work has typically included hard deadlines, and Texuna has a very strong track record of on-time delivery. Texuna's close attention to the commitments that are have made and day-to-day management practices enables deadlines to be met.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services If relevant, confirm that you agree to follow (policies can be found here: https://drive.go	Texuna agree to follow Jisc's Secure Development Policy and Secure Development and Testing principals. Texuna already work with JISC development and IT teams for 3 years. Numerous architecture and system configuration reviews conducted by JISC senior persoNnel have been passed. Texuna are very aware of Jisc's Secure Development Policy (ISM-POL-006), and Secure Development and Testing principles (ISM-NOT-012) and these have been followed throughout all work over the past 3 years. Moreover Texuna follow a formal secure development policy and development process that is audited and certified by BSI to ISO27001, ISO20000-1 and ISO9001. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data. Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code is checked, validated and verified against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's QA team create and run tests for code and system vulnerabilities prior to any major production release. This review and validation ensure that code exhibits fundamental secure properties to include correctness, predictability, and attack tolerance. Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by design for GDPR compliance. Security and audit strategies are designed around both data and named user access. Restrictions are configured using principles: • Avoid highly bespoke permissions on low-level granularity (simplicity facilitiates better management) • Encrypt or hash sensitive data where privacy is required • Separate the management of user mapping to groups from the management of access permissions with groups • Integrate to existing enterprise IAM if available (e.g. Active Directory) • Secure private data through restricted database views for Business Intelligence tools. Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported. Safeguarding issues / data protection Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following mechanisms are proposed as a minimum: • Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines. • Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In addition: - All data transmitted between the browser and the server via encrypted channel (SSLv3) - Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection mechanisms apply: • Encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256 • A least privileged access control policy • Strong password policy with the ability for users to change password if needed • Step-up authentication with MFA for power users	

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			(policies can be found here: https://drive.go
				Quality assurance and security are fundamental to Texuna's processes. Texuna follows a formal secure development policy and development process that is audited and certified by BSI to ISO27001, ISO20000-1 and ISO9001. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data.
				
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				Texuna solutions include 3 separate environments:
				• Development - New code is first deployed to the development environment so that it can be rigorously regression tested by the quality assurance team using test data. Test data is either provided by the client or may be obfuscated data processed to remove any personal or personally sensitive data.
				• UAT (User Acceptance Test) - Releases which are tested are deployed to the UAT environment for end-user / client testing usually against real data which is a copy of Production data so that Production data is not compromised. Access to the UAT environment is restricted to staff who have a need for access only.
				• Production. - Live, Production, data is always protected during the development and quality assurance processes. Deployment of releases to Production is only made once the quality assurance processes are successfully passed.
				
				Access to each of these environments is strictly controlled and open to only authorised users.
				
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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services Jisc is adopting a 'Cloud First, Mobile First' a Generally backend services will be based aro Some applications may require PHP (eg Moo Web based clients will generally use Angular. It is appreciated that technical requirements Jisc is looking for developers with depth of e The supplier shall describe which of the follo 1) Requirements and feasibility analysis 2) Mobile development 3) Scalable middleware 4) Web development 5) User Experience 6) Secure development 7) Data processing and analysis	With 20 years successful bespoke software experience, Texuna's methods have been refined for digital only, cloud-first, mobile-ready agility. We use continuous integration Texuna is an industrial level REST API integration expert. Our architecture centres around REST API management to facilitate backend independence, mobile application inte For example, the fully functioning API for Department for Education - Get Information About Schools (GIAS) system based on Government Data Services and Open Data star This streamlines multi-team development with well-formatted documentation and test stubs provided through Swagger. Simplified integration code and automatic test scri Our rounded team includes full stack developers with skills in all the cited technologies, most of whcih have 10+ years experience in Texuna. We engage in cross-training sta Texuna has polyglot programming expertise with deep Java and Javascript experience, particularly in frameworks like AngularJS, React.js, and Node.js. Texuna sometimes us • Our front-end team have produced GDS compliant solutions using AngularJS, JQuery, SASS mixins and other javascript libraries for Ofsted over the last year. We combine • Over the last 2 years Texuna delivered a Node.js based microservices solution for Irish start-up CheckMate (mobile app for community neighbourhood watch). This appl • We work with both Indeemo (mobile ethnographic qualitative research) and Alison.com (MooC) on microservices-based and cloud-based infrastructure and security pro • For university learner analytics and mining projects we work with Moodle installations to create data pipelines and warehouses, and use Python and Jupyter Notebook • A number of Texuna microservice-based projects use java, javascript and ETL packages with message queues and AWS Lambdas - for instance we operate a daily schools • Texuna deploy sophisticated web-based solutions such as the National Student Survey Dissemination Portal build for the Office for Students. The current release is base Texuna are a company who specialise in scalable data solutions. Our primary area of expertise is data collection, governance, warehousing and data lakes with deep experti We have 15+ years experience of data collection automation with the Initial Teacher Training collection and automated statutory reporting and benchmarking analytics. We Texuna's Department of Finance (Ireland) project recently delivered a containerised architecture with elastic message queues to scale for processing 100TB+ unstructured d Our teams deliver in a number of open source relational and document/NoSQL databases including MySQL, PostgreSQL, MongoDB and ElasticSearch - including at Jisc. We use our default RDBMS (Postgres) extensively for our data pipeline projects and metadata-driven ETL approach - e.g Jisc and Oxford Brookes University data warehouse Texuna has approx 16 developers, testers and devops engineers, with another 7 technical analysts, project managers and architects. 1) Requirements and feasibility analysis - 2 2) Mobile development - 3 3) Scalable middleware - 3 4) Web development - 4 5) User Experience - 2 6) Security / Devops development - 2 7) Testers - 2 8) Architects - 3 9) Project management - 2 The above team can be suplimented with freelancers that we have worked with previously to ensure a rounded approach with strong local presence at Jisc.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services The bidder shall provide details of an exampl	1) Requirements and feasibility analysis Texuna takes pride in the development of staff skills and career progression. This includes sponsoring several staff on higher education courses. All Texuna Analysts tailor the Texuna's work within the education sector has led to extensive experience process redesign, solution delivery and change to deliver benefits. Analysis and solutions delivere In addition, Texuna's recent BA discovery project with DfE's Data Directorate elicited, analysed and documented needs and requirements for six legacy systems and processe All of Texuna's business analysts posses the technical skills include providing domain expertise, requirements gathering and analysis, and overall design. This experienced te 2) Mobile development Texuna have experienced web and mobile developers that can develop in both iOS and Android and ensure all ready responsive applications. Apps use HTML5 and javascrip Texuna has developed and delivered a cloud-based series of microservices for Irish mobile app start-up CheckMate and their client Muintir na Tire. The service is used for co In addition, Texuna has recently been working with The University College Cork (UCC). The PALM team at UCC is responsible for securing placements for hundreds of studen Texuna have developed and delivered a mobile-platform that allows admin users, students and companies to interact with each other in a much more modern, realtime, pr • Developed using the Flutter open-source mobile application development framework used to develop a single source of code to deploy on Android and iOS to ensure sp • Supports analytics and progress of student journeys in placement with year-on-year reporting capability. 3) Scalable middleware Texuna's longest established client, the NCTL (now DfE) ITTDMS solution is an example of Texuna's robust enterprise-level component-based solution that has grown, expan The ITTDMS is implemented using the Kimball data model approach to integrate data marts for different classes of user. This approach also allows for easy integration with Texuna prides itself in utilising open source components to build our Data Warehouse platforms. Since inception, Texuna has actively pursued and used a large number of o The current ITTDMS project is continuously active, with providers updating trainee details and sending records for provisional registration, and recommending trainees for Q Texuna deploys its cloud-native solution using Ansible, Terraform and Docker containers to simplify infrastructure portability and follow best practice such as GDS infrastruct 4) Web development Texuna deliver web-enabled solutions, an example of which is the National Student Survey Dissemination Portal build for the Office for Students. The latest HTML 5 and CSS Texuna delivered the Ofsted Webapp (Fostering Data Collection) in 2018. A service-oriented architecture was implemented with an independent frontend SPA using open so 5) User Experience Texuna combines workshop-based evidence with user surveys to broaden coverage of user behaviours and desired outcomes. Texuna combines GDS standards with design- For Ofsted we completed Alpha, Beta and Live within 120 days. Texuna committed to deliver GDS compliant, live, nationwide Data Collection portal with regular deliveries u Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured ""evidenced"" user feedback on demos following interaction Texuna use a design-thinking approach centered on the user to determine various user group responses to proposed designs. Sprint reviews with stakeholders and users pr The Ofsted Fostering Data Collection was designed and tested to 'AA' level (W3C WCAG2.0). Texuna used WAI ARIA features to improve accessibility for digital inclusiveness 6) Secure development All Texuna Government projects are at OFFICIAL level. These include Secure Access (Single Sign-On beyond the firewall to all schools), Getting Information About Schools (GI Having worked in central government public sector for 12+years Texuna have deep understanding and practical experience of the needs of government and evolving GDS gu Our extensive work with GDS on GIAS (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. This work has successfully Texuna worked with DfE Secure Access to assess and mitigate security and identity attribute privacy issues during 2017/2018. The identity and access management service On summer 2018 user management functionality was changed on the National Student Survey portal. The following features were implemented: new user creation process Similarly Texuna's STA ItemBank for creating SATs exams was also independently evaluated for security and penetration tested by Capita in 2018 which highlighted our excel 7) Data Processing and Analysis Texuna specialise in enterprise data warehouse and big data projects to create compliant pipelines and schemas such as Kimball star schemas, Inmon relational models and	
Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services The bidder shall provide details of how it will ensure solutions are scalable. For backend services this should include approaches to scalability using cloud-based solutions, and for client-side services, should include approaches to ensuring usability by the widest range of clients, both technically and from an accessibility perspective.	Texuna's solutions are Java-based and are designed to be platform and hosting architecture-independent. Our solutions can be configured to work on any enterprise-level d • In-house private cloud which are client-managed (or managed by their hosting suppliers) • Data centre colocation • Texuna's cloud infrastructure (AWS or Azure or co-location) **Resource scalability** Texuna achieve simple scalability via elastic or serverless architectures for oru B2C customers, but Texuna often deliver scalability through a cluster architecture for well und Configuring multiple application servers in a cluster also offers a failover mechanism as, if one server should fail, then the remaining servers can pick up the extra load, albe This flexible architecture design is straightforward to achieve on public cloud-based hosting but can also be done on private cloud with some additional effort using infrastru **Scalable user access managment** There is no theoretical limit on the number of supported concurrent users as long as a highly scalable load balanced cluster is used. Where public cloud IAM is not desireabl **High availability and innovation** High or very high availability comes with a resource cost and so is matched to the required specification. For highly available solutions, the majority of maintenance activitie Very high availability can be facilitated using Texuna's innovative Zero Downtime Deployment methodology for deployments to critical systems. Greater than 5N uptime (99.999%) has been achieved in practice within the Department for Education implementation for the Secure Access project. Over a period of three Texuna designed Zero Downtime Deployments (ZDD) in response to third-party private cloud provider limitations on out-of-hours deployments. The ZDD functionality is ach **Responsive to future requirements** Texuna's solutions are defined in metadata where possible to permit a flexible data model structure, reference data files, historic data management and full audit trail of all	

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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services The bidder shall describe its approach to agi	Texuna incorporate a Disciplined Agile Development (DAD) methodology to ensure user needs are met within the strategic objectives of the enterprise. We have formalised Texuna talk to users and stakeholders to build empathy, understand their methods and motivations, and test our assumptions so feedback can be evidenced. We recommen Texuna have worked with existing Jisc agile collaboration tools and development workflows including Pivotal Tracker, but we have also used Slack and Microsoft. We have c Texuna's portfolio programme (rolling waves) and project delivery is a cyclical multi-step agile process to Elicit, Specify and Validate. • During discovery-style design workshops, staff will contribute to requirements definition. • During collaborative development and deployments (Sprinting), a joined-up customer+Texuna team jointly deliver application bundles, configurations and procedures to • At sprint reviews and transition, a joined-up team must take part in testing and acceptance. • Client staff at all levels are trained during the transition. For Jisc EDW, a data warehouse team was established and a governance process put in place with an agile methodology. This focused attention on the whole range of proje All customer implementation plans and schedules are published internally to Texuna's operations staff. This forms the basis for our overall plan and enables complete mana There is a close working relationship between the project manager and the implementation staff. This is encouraged through the tools that we use to manage our work. Tra Our projects typically include hard deadlines. We have a strong track record of on-time delivery. Our close attention to the commitments that we have made and day-to-da	
Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services The bidder shall indicate their familiarity wit	Source code Texuna extensively use GIT as our distributed revision control and Source Code Management (SCM) system. When we collaborate and share resources with clients we typica Design/UX Texuna use visual, interactive design-thinking techniques in workshops with stakeholders and representative users. This allows us to incorporate and generate personas, use For tooling we often use paper process and/or Balsamiq for low-fi wireframes to select among a range of alternatives. We prototype and design hi-fi mockups with InvisionA We recommend using Indeemo app to qualitatively research the user experience - this uses remote mobile ethnography to capture authentic UI/UX behaviours during actua Documentation management Document management and control can be done through a combination of Github, Project wiki, Sharepoint, or any other tool desired. For example, Texuna have already wo	
Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services The bidder shall indicate their familiarity wit	To simplify our BSI audits for ISO compliance, Texuna uses the open source service from Easy Redmine by default (https://www.easyredmine.com/) to track our agile sprint The tools we currently work with for Issue Tracking across projects: • Pivotal Tracker - Jisc • Jira - RGS, Indeemo • Azure Boards Work Items (Visual Studio 2017) - GIAS (DfE) • Trello - GIAS (start of project), Ofsted • Asana - Edukit • Confluence - Dell EMC • Easy Redmine - Oxford Brookes, CheckMate Our ISO-based process around issue-tracking to capture feature requests, track bugs and monitor progress to resolution includes a range of auditable activities: • User story is defined along with Acceptance Criteria. • Backlog items to be included in each sprint are identified in the planning session. • Work is allocated out during a given sprint. • A ticket is marked as 'resolved' in development once the deliverable components in the ticket are documented/coded and all unit tests are passed. • Code review is completed by scrum master or technical architect to adhere to standards. • Texuna QA is responsible for testing the developed code to ensure that it meets the ticket requirements. • Texuna QA is responsible for creating and automating regression tests for continuous deployment.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 1. Developer Services The bidder shall describe its approach to test	Texuna's project life cycle is modelled around Test Driven Development (TTD) and the Agile methodology. An automated process of constant testing and rebuilding within iterative development sprints is used to achieve a constant quality control regime. Each iteration in the deve Texuna operate a 5 tier testing framework as follows: 1) Developer: Unit tests 2) Tester/QA: Functional/regression testing 3) Business Analyst: Business/data testing 4) Customer: Acceptance testing 5) User: User acceptance testing Texuna employ rigorous testing at all tiers using automated and manual tools that precede any deployment to customer accessible test environments to maintain our strong Automated unit-tests and regression testing procedures are utilised during the build phase. A testing procedure (unit-test) is created on any task before it is submitted to th Texuna uses each of the following modern testing frameworks depending on individual project requirements: • SonarQube - an open source platform for Continuous Inspection of code quality. • JUnit - a unit testing framework for the Java programming language. • Mockito - Mockito library enables mocks creation, verification and stubbing in unit tests. • FitNesse - fully integrated stand-alone acceptance testing framework and wiki. • Canoo Webtest - free Open Source tool for automated testing of web applications in a very effective way. • Watir - open source Ruby library which helps to achieve cross-browser automation testing. • PyTest Selenium and Allure - Python framework for running Selenium based tests (cross-browser automation testing). • Jenkins CI - the leading open-source continuous integration server, which is used for automatic execution of unit and regression tests. Apart from automated unit-tests and regression testing, each release is tested by our quality assurance team with a variety of manual and automatic testing procedures Automated testing procedures are implemented for every feature, and the release is also tested manually, where applicable (this usually includes UI operability checks base Therefore QA testing predominantly make use of automated testing tools with audit trails. Any test that cannot be automated is tested manually during UAT prior to each p Each specific piece of new functionality will attract a number of tests with specified criteria to meet as well as outlining the main negative tests that should be trapped (i.e. As well as testing of each new piece of functionality, a series of standard tests will also be devised. These will be tests of the overall system functionality and are expected to Known bugs and issues will be tracked in a shared repository, and updates for each testing phase will be fed into this, with new issues being added and existing bugs being r Texuna carries out penetration testing on all delivered solutions to ensure our software is secure from known vulnerabilities and uses the following tools: • OWASP Application Security Verification Standard • OWASP Zed Attack Proxy (ZAP) • OWASP Dependency Check • Wfuzz • Observatory by Mozilla • FindSecBugs • NMap • Nikto2 From time to time our customers also engage independent penetration testers to check solutions and lessons have been learned from this process and incorporated into Te	
Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services The supplier shall describe how it would sup	Texuna has already built up expertise in discovery and feasibility stages of a number of HE data initiatives, as well as having worked with ABL and FE sector extensively in the Texuna has a long track record of flexibly resourcing projects, redeploying and re-assigning resources as needs dictate. Texuna have a pool of full-time multi-disciplinary staf	

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Scenario 1. Jisc is on-boarding new customer	**Scenario 1 - On-boarding new customers for Learning Analytics Service.** The existing on-boarding framework and guidelines would give a consistent and overarching structure to Jisc service delivery. Within the context of this structure, Texuna ca **Orientation, initial training and induction:** Potentially, initial training and induction on the Jisc Learning Data Hub (LDH) may be required before any onboarding. This will ensure new Jisc customers understand the LA Initial training and induction is expected to be guided by Jisc's existing material on effective Learning Analytics and LA services. Texuna would view this as first step in a wide Further details of Texuna's planned, measured and managed approach to training and rollout is detailed at the end of this question response. **Envisioning ensuring the direction and shared understanding of work:** Another critical first step in Texuna's approach is to understand each customer's true business objectives and desired outcomes. With 15+ year's expertise in processing HE • What is the vision for the works outcome. • How the success of the work be measured through business benefits. • The core business drivers. • The expected scope/boundaries/constraints and delivery strategy. • The right people to include in the project community. This shapes the sufficient up-front design approach used in any discovery setting high-level initial priorities for delivery. This workshop approach and tools such as innovation games facilitate understanding and allow customers to have meaningful data conversations. This is essential if teams a **Discovery and detailed analysis:** From envisioning and potential document reviews, Texuna summarise and build an initial delivery strategy to help achieve the vision and goals discovered. This is refined an A discovery and analysis stage build on initial delivery strategy, understanding readiness, aligning with wider organisational strategy, eliminating misunderstandings and acti A key aim of deep dive discovery is scope refinement, understanding readiness, setting expectations and risk reduction and sharing across parties. Within any defined scope Texuna are well versed in HE data analysis, as a vendor-neutral system integrator Texuna are additionally conversant in a range of technology and systems. This ranges from Texuna apply this knowhow with Discovery and analysis activities that cover both top-down business driven requirements and a bottom-up analysis of technical needs. This 1. Deep dive into existing LA reports and data sources – This involves reverse engineering of existing reports and interviews and information requests from report writers, sy • An album of reporting form; • Reporting universe description; • Reference model; • Source system catalogue; • Data foundation model; • Data quality scorecards. 2. New reporting requirements gathering – Texuna use a visual workshopping approach, described under the response to stakeholder management. This commonly leads to • BEAM* models; • Requirement logs. 3. New data source analysis - Similar to existing LA reports and data source analysis, but weighted towards source systems, interviews and information requests, as the data • Album of reporting form; • Reporting universe description; • Reference model; • Source system catalogue; • Data foundation model; • Data quality scorecards. 4. Alignment to UDD data model. Texuna can use their prior expertise with the UDD within Data modelling workshops to elicit answers to business questions in mapping exi • An enterprise bus matrix, targeting the UDD; • Logical data model prototypes; • Physical layers architecture. 5. Initial ETL analysis. Requirements and mappings for ETL are defined in attaining the target UDD model. This is carried out by Texuna analysts and through 'show-n-tell' ses • UDD data flow model; 6. Estimations. Texuna create more detailed estimations of effort work to be carried out (modelling, ETL and integration with Jisc's LDH). These are based on Epics in Agile n • Epic backlog and delivery strategy for approval, • Detailed list of data quality issues and complexities. 7 – Approval. Texuna present findings from analysis and plans in a simple to understand manner in order to reach fully agreed consensus models and plans. Workshops, Epi Texuna's approach is to leverage existing or establish new governance to explicitly recognition both legal obligations and 'digital ethics', so values and moral principles for th Clear senior presentation, discussion and approval of plans will ensure work proceeds aligned with strategy, context and scope, promoting the strongest support, direction a **Analysis process:** Analysis is not a sequential one way process. Rather it is a cyclical process within each step above organised around: Elicit requirements; Specify requirements; and Validate **Elicit Requirements** Texuna engage stakeholders in a way so they explain not only what they want, but also what they actually need. Involving the right representative business user is essential, • Vertical (cross management ranks engaged in LA, often including student/students union representation) and • Horizontal (cross department) perspectives. This is essential so business decisions controlling data supplied to the UDD establishes a credible and conformed understanding early. Analysis techniques that Texuna apply • Requirements Workshops: Work well when the scope is broad and there are lots of stakeholders. Need to avoid highest paid person in group-think, so getting participants • Interviews: Needed when complex requirements are owned by a single person or when it is logistically difficult to organise a workshop. However this approach is more su • Reverse Engineering: Great for quick deep dive into existing reporting and data sources to get overall understanding. It is also useful to identify problem areas and opportu **Specify Requirements:** Texuna analyse and document each requirement discovered. Texuna use a toolset and methodology that has proven effective in other successful HE data initiatives, these a • Requirements log • Enterprise Bus Matrix • Reference Model • Album of Reporting Forms • Source Data Model • Source system catalogue	

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Scenario 2: Jisc uses open standards in its Le	**Scenario 2 – Maintenance and extension of Jisc Learning Analytics Service open standards** Texuna have been strong advocates for the use of and contribution to open standards and OSS since the company was established. We use GIT as the company's configurat At Texuna we are also regular users of GIT or GitLab for configuration management and will contribute to Jisc's Learning Analytics Service through open collaboration tools s Texuna have a genuine appreciation and understanding of the LA open standards through use of the UDD in recent implementations within HE dataflows for LA and data wa Texuna also has years of experience in creating and using APIs in a range of scenarios. This varies from exchanging student data with sector bodies such as HESA and the DfE	
Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services Scenario 3: Jisc works with small teams from	**Scenario 3 - Jisc Data Visualisation Labs** In all of Texuna's prior HE LA work, a key facilitator for understanding insights and business needs is a LA community of practice within a provider. Fostering a local commun A key aim of labs and workshops environments is to stimulate meaningful data conversations and in turn understand perspectives within the community. This is essential if Depending on the level of needs analysis required, Texuna facilitators synthesises groups insights through persona profiles and scenarios, into an actionable problem statem Depending on the brief and clarity on needs, initial prototypes may be created prior to a workshop to form of visual ideation as a catalyst for ideas. A prototype can be any With a clear focus on needs and required insights, the creation of data visualisations commonly continue with a similar prototyping ethos. Texuna best practice for BI works • Always design for the user Persona profiles, scenarios and user journeys helps define the user goals that must stay at the fore. These are essential to ensure a report user gets the right information ne • Think big, start small, seek feedback early and often Business needs and objectives for visualisation may be large, similarly end-to-end user journey may be complex. To make big targets achievable a "thin slice" is addressed. • Prototype to deliver on needs and identify new ones Each visualization seeks insights to business questions and need, prototyping and evaluating ideas. A working prototype allows for feedback to: - Refine a visualisation, - Sometimes discard a visualisation or option. - Learn early and pivot if new insights arise clarifying existing or presenting new priority needs. • Be prepared to discover more An effective visualisation often enable users to discover something new. In turn this may place a new perspective on business needs, data or the insights required. When t Over the last 15+ years Texuna has worked with a wide range of HE providers and diverse roles in defining and delivery reports and data visualisations collaboratively. This We have also worked within the HE sector to deliver visualisations on Qlikview and on bespoke HTML5 and interactive visualisations on Jupiter Notebooks. This experience and Texuna's vendor independent nature means we have hands on experience is a wide range of BI tools. Whether it is creating reporting tools, for instance Texuna are well founded in the data, potential tools and best practice in visualisation design. Usability and ease of understanding is at the heart of all successful visualisatio Lastly, it is worth noting that Texuna are accomplished working with Jisc's branding and UX standards. This is shown in work with the Jisc's data warehouse team creating an	

	Sector	Solution	Question	Template Response	Picture number

Jisc

Sector:

Solution: Research and Development Consultancy Framework 2019

Question: Lot 5. Data and analytics services
End of Q1... bit on handover - MAYBE TOO B[...]

Template Response:

Planned, measured and managed rollout for all scenarios
An effective rollout strategy incorporating monitoring and feedback loops is required to ensure the success of any project or completed statement of work. In addition, this [...]
Texuna can assist Jisc's customers to managed rollout effectively, avoiding potential resistance and also encouraging wider buy in. This promotes potential subsequent onb[...]
The level of rollout work required will be dependent on the size and nature of customer work required. The detailed response below considers a large project or piece of w[...]
Preparation Phase
Preparation - Organise
Preparation and planning begins with initial impact analysis of changes to support Jisc's LDH and LA services locally. Preliminary steps at kick-off define scope, timelines and [...]
Preparation - Engage
Engagement of key customer staff is via workshops, allowing plans to be reviewed and tested. Face-to-face workshops are proposed, as experience has shown that emails a[...]
Preparation - Equip
Jisc and customer teams will be fully engaged through the creation of capabilities as customers are on-boarded, LA Service specifications are extended or visualisations crea[...]
Transition Phase
Transition Phase - Organise
As a project or completed statement of work is transitioned into service, role mappings for stakeholders identified in planning should be reviewed. Any gaps identified will l[...]
• The capacity for change;
• Sponsorship and management support required and present.
• Effects of any past changes, incorporating and prior lessons learned.
• Staff readiness (may lead to a revised communication and training strategy), involving a more detailed skills gap analysis.
• Culture and value system, evaluating expected reaction to any change.
The readiness report may lead to a revision of rollout plans and strategy.
Transition Phase - Engage and Equip
Once plans and strategy are confirmed and finalised, the bulk of communication and training is executed. Training is supported with conclusive documentation. This will re[...]
Training within HE data and BI services commonly considers two streams: training for staff managing data (back office), and training for staff using the data (users). Both gro[...]
Back office users, are expected be involved in implementation and delivery, so as to enable ongoing knowledge transfer from business knowhow, to technical coding details.[...]
Texuna regularly conducts training sessions for clients and tailor this to exact needs. This is commonly delivered by Texuna's own staff and/or certified trainers for tools used[...]
Texuna staff, who have been working on a project have an in depth knowledge of the solution and commonly run sessions. Training plans dictate the training approach suita[...]
Texuna favour a mix of different training types, categorised as:
• Technical users - the development and support staff who need to be skilled to take over the day-to-day development and support. This is a small group of technical user[...]
• Power users - a small number of specialist users each with particular needs for a comprehensive understanding of the particular tool they use.
• Report generating users - a larger group of users who need knowledge and skills to enable them to understand the data and generate reports effectively.
• HE staff users, potentially a large number of users who may use LA services either regularly or on an ad hoc basis.
The approach taken to each of these different sets of users will differ. The following general principles as training methods apply:
• Where the number of users to be trained is relatively small, Texuna recommend face-to-face or conference based training sessions on focussed topics. Full technical doc[...]
• Power users training will be a priority during the handover phase so that this specialist group of users are upskilled early in the process as needed. Small group or indivi[...]
• Training for a larger user base, such as the large number of Consumers, may take on a different dynamic. Texuna will develop training materials and may use videos or o[...]
• Demonstrations of the systems.
• "Super user" training (train-the-trainer) after project implementation.
• Face-to-face training sessions in training workshops as part of the UAT process.
• Exercises and walk through of typical steps.
Handover and Support Phase
Handover and Support Phase - Organise
For new solutions, governance for dataflows and LA services will evolve during transitions to BAU. Roles commonly adapt to become more Change Advisory Board, often le[...]
• An ethos of listen, improve and deliver, which will bring much greater ROI;
• A rigorous, but streamlined, review and change procedure, ensuring dependencies are supported and change is controlled; and
• The necessary stakeholders are informed, consulted and able to make informed decisions on the progress of the data assets management and Learning Analytics.
Handover and Support Phase - Engage
Texuna take responsibility for training staff so that they are sufficiently competent to continue any maintenance. If required, Texuna can however assist in the maintenance [...]
Service desk processes and procedures can be defined and agreed to align with Jisc prior to work completing for a customer. Texuna have experience in running 1st to 3rd li[...]
Handover and Support Phase - Engage and Equip
The final phase is agreement on any required regular service reviews and formal signoff from customer's. This includes for support documentation and tools and training, b[...]

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Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services The supplier shall describe the approach it w	Texuna view engagements in HE as strategic partnerships whereby the customer is fully supported and involved in key decisions. For some HE customers Texuna team mem Texuna expect to act as an extension of both the Jisc and Jisc customers' teams, acting as a glue to bring both parties together and keep them together. Texuna staff will be This approach expedites technical expertise and supports an Agile methodology firmly focused on regular customer engagement and feedback. Texuna's transparent, flexib Within each customer it is important to identify key users and influencers early and include them in the project team and stakeholder management strategy and communica Texuna view knowledge transfer as a critical success factor in evaluating their work and stakeholder engagement. This is greatly facilitated by the thoughtful engagement of • Shared workspaces and environments both online and offline, including establishing Working Party Lists and 'get-to-know-you' sessions so that everyone becomes comf • During requirements definition at least one member of the customer's LA team staff participates in all interviews and workshops to identify and confirm priorities or the • A customer LA team member acts the contact point for each of the source system and data owners, and will push to ensure sample data or backup copies of data are av • During the actual design and development sprinting customer LA staff contribute to ETL mapping and data modelling workshops, provide feedback to the high fidelity p • Customer staff work have dedicated time to work together with Texuna developers to understand and help deliver code and procedures needed. This is included assum • In Sprint Reviews and transition to Go-live, customer staff take part in testing and acceptance across all jobs irrespective of the original author. Interactive reviews withi Texuna operate an Agile development and project methodology, aligned with certain PRINCE2 project management processes refined over years of successful delivery. This	
Jisc		Research and Development Consultancy Framework 2019	Lot 5. Data and analytics services The supplier shall describe the outputs it wil	Outputs will be dependent on the scope of work a Provider requires. This scope will be clearly agreed with each Provider in well-defined and agreed Statements of Work be Outputs are expected to potentially include: • Orientation and induction sessions - initial training and induction on the Jisc Learning Data Hub (LDH) may be required before any onboarding. • Envisioning workshop(s) and report(s) – assisting Providers in defining objectives, direction and shared understanding of LA initiatives. This may include initial scope, s • Discovery and detailed analysis eliciting, documenting and validating: - Requirements log: (based on workshop reports, interview protocols and minutes), defining 3W's: o What – capability, characteristic, function, feature, or quality? o Why – purpose or value to be achieved? o Who – source of the requirement and the stakeholders who will receive benefit? - Source to UDD Enterprise Bus Matrix: A conceptual model of data realised through the initial creation of a dimension matrix, translated to a formal data schema target - Reference Model: A collection of reference data currently used, mapped to UDD standards. It is a description of rules for unification, groupings, hierarchy, and data ma - Album of Reporting Forms: A collection of structured LA report descriptions which both report consumers and designers can understand. The album contains report re - Source Data Model and system tracker: Data source types, interfaces, schema of relevant tables and joins which are used as the basis for the transactional data transfo - Data quality scorecards / Detailed list of data quality issues: Defining data's completeness, uniqueness, validity, accuracy, integrity and consistency. This may be summa - BEAM* models: User needs driven data stories describing student and LA business processes, defining dimensions and Facts. - Logical data, UDD dataflow model prototypes and physical layers architecture – Allowing for accurate estimates of effort, minimise potential problems and ensure wor • Approved Learning Analytics Backlog - Epics for future work, User and Data Stories with completed detailed design for priority work. This supports an Agile delivery of • Approval delivery plan – Representing a detailed schedule of work and dependencies • Data governance support and plans - Providing recommendations on an appropriate methodology and structures to approach governance as a team sport embedded • Sprints delivering managed data assets (e.g. addressing data quality issues), LDH data integration and LA capabilities: - Orchestrated ETL solutions acquiring, cleansing, integrating and delivering LA data to and from Jisc services used Jisc LA standards. - Point-to-point webservices/SFTP integration and data validation/cleansing routines using Jisc standards (potentially packaged in containers and scaled independently a • Support and advancements to the Jisc Learning Analytics Service open standards – Maintaining and extending the Jisc open standards. Expanding current UDD RESTfu • Local LA community support - Support for providers in initiating and fostering a local community that joins professional services, researchers and teaching staff. • Analytics and visualisations labs, workshops and training – Leading, facilitating and documenting outcomes from session stimulate meaningful data conversations to u • LA delivery prototype – Physical visual stories used as a starting point for provider LA delivery and visualisation designs. • Independent reviews and advice on LA delivery – Not only considering the delivery of data and insights to meet business need, but also leveraging know-how in the e • Planned, measured and managed rollout - Strategy and implementation to upskill Provider staff to take ownership of any LA work Texuna deliver, ensure the highest li • Potentially ongoing support (expected 2nd and 3rd line) in collaboration with Jisc – Supporting work delivered during LA initiatives with providers.	

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Jisc		Research and Development Consultancy Framework 2019	Lot 8. Data, text mining and data visualisatio The bidder shall describe the project manage Scenario: Jisc has worked with a university to	Texuna worked with the Department of Finance in Ireland to design and develop a scalable, electronic discovery and disclosure service that could process up to 100TB of te Our agile mindset and methodology robustluy delivers early stakeholder engagement through workshops and change-embracing methods. Texuna will guarantee certainty on high risk projects through Agile principles of:	
				● Collaboration (business project champion, product owner, developers, users).	
				● Prioritised Epics bounded within time-boxes balancing Prince2 with Agile.	
				● User and data story, outcome-driven development.	
				● Continuous backlog grooming by ScrumMaster, Technical Architect, Product Owner.	
				● Production quality "definition of done" controlled by Technical Architect.	
				● Self-managed and organised teams with ScrumMaster coordination.	
				● 2-week sprints with retrospectives and product reviews.	
				● Story-pointed, incremental development with daily stand-ups.	
				Texuna's deployment methods have been refined for cloud-first agility. Continuous integration and deployment and automation to remove complexity of setup/operation/i Each project with a customer is assigned a dedicated Project Manager and Account Manager, with regular formal reviews scheduled at least twice monthly (with the Project Texuna project managers are Prince2 practitioners with histories of successful, on-time delivery in complex HE environment with multiple stages and stakeholders/suppliers	
				● A controlled and organised start, middle and end to discovery/implementation and delivery.	
				● Regular progress reviews.	
				● Management control over deviations from plan, and flexible decision points.	
				● Excellent communication channels and stakeholder involvement.	
				● Strong configuration management.	
				The Texuna project manager also fulfill the key functions and have accountability for:	
				● Management of the resources allocated to the project.	
				● Management of communication and deliverables of the project and to act as the principle work-in-progress contact for key project stakeholders. This role extends to t	
				● Management of the internal communications and resource allocation and the work of the project team.	
				Texuna's standard Prince2 practices are ISO9001 compliant including:	
				● Communication strategy/plan, setup early, and maintained throughout.	
				● Governance process, with escalation routes.	
				● Outline phase and stage plans, providing a basis for controls that compliment an Agile delivery within stages.	
				● Risk/Issue/Non-conformance log.	
				● Quality plan; defining how outputs will meet standards.	
				● Change control process where contract tolerances are exceeded.	
				● Lessons learned/Sprint retrospectives/Sprint review logs.	
				● Regular reporting (weekly PM, Sprint Planning, Backlog Grooming, daily SCRUM, bi-weekly Sprint Retrospectives/Reviews).	
				● Detailed project/stage plans, progress reports (with 'RAG' ratings) and exception reports (if tolerances exceeded).	
				All of Texuna's deliverables in all aspects of business operations and services, with no exceptions, are planned, monitored and controlled through it's ISO 27001 Information	
				• Satisfying customer requirements efficiently, effectively and consistently.	
				• Continually adding value to processes and all aspects of the business for the organisation and customer.	
				• Delivering correct, defect free products to our customers on time and within budget.	
				• Aligning activities with the values, purposes and strategic vision of Texuna.	
				Texuna's prior work has typically included hard deadlines, and Texuna has a very strong track record of on-time delivery. Texuna's close attention to the commitments that a	

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Jisc		Research and Development Consultancy Framework 2019	Lot 8. Data, text mining and data visualisatio The bidder shall describe the methods it will	**Addressing data needs** Texuna has plentiful experience in working with Big/IOT data, text and data mining and data visualisation projects. Texuna has available staff with more than 5 years practica With Jisc, Oxford Brooks University and the DfE, Texuna have been processing Big Data for through authenticaion and access logs. Although not the same data as defined in - R with packages such as (TwitteR, tidytext, dplyr, tidyr, broom, ggplot2) - Python's Juypter Notebooks with packages such as (Natural Language Toolkit (NLTK), TextBlob, CoreNLP, Gensim, spaCy, polyglot - Knime - an open source, visual orchestration tool for builiding dataflows with component steps for analytics, mining and machine learning processes. - Pentaho Data Integration to securely parse data mined to secured sources. Texuna has some experience in processing and analysing data from social media. For example, for the MOOC Alison.com that has over 10 million learners, Texuna aquired a - Engagement - Impressions - Organic/Paid Likes - Page Likes - Engagement Rate - Followers - Link Clicks - Mentions - Profile Visits - Replies - Retweets - Tweet Impressions - Tweets This was supported using R and Python libraries that were listed above to process and aggreagte the data into a report that was shared with senior members of staff at Aliso **Addressing user experience needs** Texuna are fully capable of user experience with skills built from delivering sector reporting tools and enterprise datawarehouse and BI project with Jisc, HE providers as we Texuna use a highly visual and workshop approach to understand needs, insights elicited are synthesised into persona profiles and scenarios, leading to an actionable proble Lastly, Texuna thinks about accessibility from the start and delivers digital services that at minimum meet level 'AA' of the W3C WCAG2.0 and work on the most common ass **Addressing legal needs** Texuna recgonise that data mining and managing user data requires strict compliance to ensure security. Our 'nothing-accessible and everything-auditable' approach makes Texuna's work with the UK government and Universities as a data processor handling sensitive personal information (such as student data and electronic patient records) m To secure potentially sensitive data, encryption and cryptographic controls will be used for both data in transit and at rest, alongside attack-resistant infrastructure. In-Transit, protections include: * SSL between web server and the authenticated user's web browser (TLS 1.2). * Data encrypted in transit - AWS Virtual Private Cloud and the Virtual Private Network (AWS Direct Connect IPsec using AES-256, SHA-256). * ETL local processing with data encrypted at rest (AES-256). At rest, encryption is applied to data at permanent and temporary storage, whether as digital objects or at database level. This would include: * AWS Simple Storage Service (S3 buckets) or AZURE Blob Storage Service Encryption. * Multi-AZ Relational Database Service (AWS RDS) PostgreSQL or Azure Database for Postgres storage encryption. **Addressing scalability needs** Texuna understand the need for scaling and have experience that when services increases by an order of magnitude then additional system resources can easily be configur We achieve scalability through a variety of way: - Containerisation through Docker and Kubernetes - Configuration of alerts and monitoring systems to determine usage levels - Leverage of cloud-based solutions such as (AWS Auto Scaling) to automatically scale based on configured thresholds	

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Jisc		Research and Development Consultancy Framework 2019	Lot 8. Data, text mining and data visualisatio The bidder shall describe the approach it wil	Texuna view engagements in HE as strategic partnerships whereby the customer is fully supported and involved in key decisions. For some HE customers Texuna team mem • Regular face to face meetings with the client project management team, typically in person and occasionally by video conference. • Regular sprint demo reviews to identify and address any issues early. • Project plan updates and exception reports - at intervals. • Meetings as required with third parties to identify issues and constraints or to manage risks. • Engagement and empathy building with stakeholders and specialists within the client organisation to ensure a clear understanding of outcomes and priorities for delivery. Texuna expect to act as an extension of both the Jisc and Jisc customers' teams, acting as a glue to bring both parties together and keep them together. Texuna staff will be Client should expect regular face-to-face onsite working - initially more intensive during a brief Discovery Phase when close collaboration is most needed for requirements t Within each customer it is important to identify key users and influencers early and include them in the project team and stakeholder management strategy and communica Texuna view knowledge transfer as a critical success factor in evaluating their work and stakeholder engagement. This is greatly facilitated by the thoughtful engagement of • Shared workspaces and environments both online and offline, including establishing Working Party Lists and 'get-to-know-you' sessions so that everyone becomes comf • During requirements definition at least one member of the customer's team participates in all interviews and workshops to identify and confirm priorities or the "gotch • A customer team member acts the contact point for each of the source system and data owners, and will push to ensure sample data or backup copies of data are availa • During the actual design and development sprinting customer staff contribute mapping and modelling workshops, provide feedback to the high fidelity prototype demo • Customer staff work have dedicated time to work together with Texuna developers to understand and help deliver code and procedures needed. This is included assum • In Sprint Reviews and transition to Go-live, customer staff take part in testing and acceptance across all jobs irrespective of the original author. Interactive reviews withi Texuna operate an Agile development and project methodology, aligned with certain PRINCE2 project management processes refined over years of successful delivery. This	

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Jisc		Research and Development Consultancy Framework 2019	Lot 8. Data, text mining and data visualisatio The bidder shall describe the range of issues	**Technical**
				 The service will look to adhere to strict standards where services available will be mined. This is in conjunction with our standards set out by ISO 27001, along with ISO 9001
				 Texuna can look to provide technical checks in the form of audits through penetration testing through a suite of tools used. Namely:
				 ** OWASP Application Security Verification Standard
				 ** NMap
				 ** Nikto2
				 ** Observatory by Mozilla
				 ** OWASP Dependency Check
				 ** FindSecBugs plugin for FindBugs
				 ** OWASP WAP-Web Application Protection
				 ** OWASP sed Attack Proxy
				 ** OWASP Xenotix XSS Exploit Framework
				 ** Wfuzz - The Web Bruteforcer
				 ** Fuzzdb - Extended dictionary of attack patterns and primitives for black-box application fault injection and resource discovery.
				 ** Retire.js
				 Texuna have also previously been independently penetration tested by BSI on multiple occasions, and are committed to supporting further external penetration testing serv
				 Texuna aim to simplify the data protection impact assessment by facilitating security and privacy for GDPR compliance. Security and audit strategies are designed around b
				 • Avoid highly bespoke permissions on low-level granularity (simplicity facilitates better management)
				 • Encrypt or hash sensitive data where privacy is required
				 • Separate the management of user mapping to groups from the management of access permissions with groups
				 • Integrate to existing enterprise IAM if available (e.g. Active Directory)
				 • Secure private data through restricted database views for Business Intelligence tools.
				 In addition, when it comes to safeguarding issues and ensuring data protection, Texuna encourage:
				 • Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines.
				 • Secure and robust database design and software architecture. The solution will be subject to Texuna penetration testing ensuring no security flaws exist in its design. In ad
				  - All data transmitted between the browser and the server via encrypted channel (SSLv3)
				  - Specific data fields will be protected.
				 • Encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256
				 • A least privileged access control policy
				 • Strong password policy with the ability for users to change password if needed
				 • Step-up authentication with MFA for power users
				 Texuna can support Jisc in data mining without compromising the legality. Texuna have a wide-range of experience with connecting and developing via API's such as industry
				 - RESTful
				 - OData
				 - WebHooks
				 Furthermore, Texuna can suggest processes to ensure users do not attempt to supersede information that is not publicly available via the application. Namely through confi
				 - Amazon API Gateway
				 - AWS WAF - Web Application Firewall
				 - Zabbix monitoring platform
				 Dependant on the level of research needed and business drivers, Texuna can address the level of scaling needed for the application through implementing all components i
				 Texuna can look to support processes by introducing machine learning to ensure text mined can be securely classified and stored as part of policy and governance. The follo
				 - Naïve Bayes
				 - C4.5 decision tree
				 - Sequential Minimal Optimization (SMO)
				 - Random forests
				 Cultural, Organisational and ethical
				 Text and data mining (TDM) is defined by the UK Intellectual Property Office as:
				 "The use of automated analytical techniques to analyse text and data for patterns, trends and other useful information"
				 Based on the TDM exception (section 29A of the Copyright, Designs and Patents Act 1988 (CDPA)):
				 "An exception to copyright exists which allows researchers to make copies of any copyright material for the purpose of computational analysis if they already have the right
				 Texuna work closely with customer Data Governance teams to ensure data assets were secure and correctly identified and all processing and analytics meet legal and ethica
				 - Written documentation outlining clear areas permissable for data mining
				 - Support in training of staff members on the system to ensure features are not misused
				 - A workshop on what type of data is publishable(shared) both internally and externally by Jisc
				 Ethical, organisational and 'fair dealing' issues must be duly considered and decisions clearly already made before exploiting analytics. In much of Texuna's prior work, there	

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	Sector	Solution	Question	Template Response	Picture number
Jisc		Research and Development Consultancy Framework 2019	Lot 8. Data, text mining and data visualisatio The bidder shall describe the outputs it will p	The supplier shall describe the outputs it will produce to help Jisc address all of the scenario described above. Outputs will be dependent on the scope of work Jisc requires. Outputs are expected to potentially include: - The service will look to adhere to strict standards where services available will be mined. This is in conjunction with our standards set out by ISO 27001, along with ISO 900 - Technical checks in the form of audits through penetration testing through a suite of tools used - Feasibility studies with exploratory analysis and prototyping application of various algorithms - Data analysis and reports and visualisations with data science packages (R and Python) to create meaningful insights. This also includes codeless interfaces within orchestr - Use a highly visual and workshop approach to understand needs, insights elicited are synthesised into persona profiles and scenarios, leading to an actionable problem sta - User Researchers to build empathy to understand users motivations and desired outcomes and to test our assumptions so user feedback drives improvements. - UX evaluation through focus groups and 1-1 interviews. - A user-centered multi-stage problem-solving process that requires designers to empathize & foresee how different users respond to proposed designs testing hypothesis. - Design with accessibility in mind. - Facilitating security by design for GDPR compliance. - Enforce our intrinsic policies, processes and artefacts which will apply to all our development work. - Scalability through containerisation through Docker and Kubernetes along with configuration of alerts and monitoring systems to determine usage levels. - Support Jisc in data mining without compromising the legality. - Suggest processes to ensure users do not attempt to supersede information that is not publicly available via the application. - Suggest introducing machine learning to ensure text mined can be securely classified and stored as part of policy and governance. - Ensure discussions of 'digital ethics' along with compliance to the TDM Exception	
Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services The Bidder must list the browsers and devices used for testing, together with a rationale for their choice, and describe their process for keeping up to date with latest testing trends.	Texuna effectively verify UI updates and ensure cross-device/browser compatibility. Tests can be conducted on all leading browsers (Chrome, Firefox, Edge, IE) along with th • Windows: Internet Explorer 11 • Windows: Edge (latest versions) • Windows: Google Chrome (latest versions) • Windows: Mozilla Firefox (latest versions) • macOS: Safari 12 and later • macOS: Google Chrome (latest versions) • macOS: Mozilla Firefox (latest versions) • iOS: Safari for iOS 10.3 and later • iOS: Google Chrome (latest versions) • Android: Google Chrome (latest versions) Texuna uses the latest version of the best open source software testing tool (SeleniumHQ) to help ensure that all automatic tests are complete, accurate and up to date. Se We also follow GOV.UK's guidance for compatibility. The rationale behind the specific browsers listed above is due to users needing to be able to access the information the If services are aimed at internal users rather than the general public; Texuna look at service being deployed and the analytics generated to verify user behaviour to accurate • Operating systems • Browsers • Browser versions • Screen size/resolutions • Choice of mobile device If evidence shows that users have specific needs or require extra support, Texuna can accommodate to ensure tests are updated to ensure completeness and browser capa Texuna look to engage the business to validate decisions about compatibility at the start of the project to determine a baseline. This can be further updated once additiona	
Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services The Bidder must provide details of their appr	Texuna's practice for all projects is to have an open and transparent partnership with our clients. Texuna encourage successful and productive communication alongside join • Regular onsite face to face meetings with both the development and business teams, typically in-person, supplemented by video conference. These can take place across • Regular sprint demo reviews to identify and address any issues early - these can be onsite with customers or via remote desktop video conferencing tools that are easy for • Project plan updates and exception reports conducted at predefined intervals; • Project based meetings as required with stakeholders to identify issues, requirements, or to manage risks; • Engagement and empathy-building with project stakeholders within JISC to ensure a clear understanding of outcomes and priorities for testing. • Pizza and beer - we should never underestimate the importance of building personal relationships and the empathy that brings as it really helps foster collaboration. Ther Furthermore, Texuna would look to further engage JISC "knowledge holders" (stakeholders) through business analysis and requirements definition to prepare the Delivery r Because Texuna is tool agnostic, we are happy to work with the choice of collaboration tools that are already in place within Jisc and/or their customers. These can be Goog	

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Jisc		Research and Development Consultancy Framework 2019	Lot 9. Testing services The Bidder must describe their approach for	Texuna look to validate each release through our experienced QA team by implementing a variety of manual and automatic testing procedures. Automated testing procedu • Functional • Graphic user interface • Accessibility • Integration • Configuration check-ups • Performance • Penetration • Disaster recovery Each specific piece of new functionality will undergo several tests. Texuna will outline the steps to follow for users to test against the functionality being developed. We outl The second tier involves Texuna BA's testing all elements of the system in conjunction with the Customer via User Acceptance Testing. In the event issues are identified, Texu Texuna automated functional testing against all commits that are integrated and pushed to release (thousands of tests/project). This happens from first commits and with t Automated functional testing procedures are utilised by Jenkins CI Pipelines to trigger regression tests and to ensure that the new code submitted does not interfere with a • Pull all code requests to allow for synchronisation with developers • Schedule test to be executed in an automated manner for one or more test environments or configurations • Compile statistics on tests after execution • Configure emails to relevant stakeholders with a count of passed/failed tests for reference • Manage and store testing reports for a certain period Texuna uses Data-Driven Testing approach providing re-usable test logic to reduce maintenance and improve test coverage. Input and result (test criteria) data values can be Texuna's testers are highly technical engineers that code and automate scripts in a variety of different languages and tools. In November 2015 Texuna has developed a syste Testing will be accompanied by a specific test plan and test cases for each release. Test plan will specify the features that the implemented solution will be measured and te The test plan and all test results will be subject to Texuna's peer review. Test plans will be signed off by JISC and the test results documented on the project wiki and resoluti All test results will be centrally reported on the project wiki allowing effective collaboration in the testing process. Any failed test would raise an issue, with the steps taken t Whenever an issue is highlighted by our testing team, it is registered on the tracking system and immediately assessed by the development team. All raised bugs are unique	
IDeA		LG Inform Plus	Please outline your organisation's experience	Texuna has a long history in developing hosted, on-line IT systems. Over the years we have built projects that rely on a large amount of data integration: * GIAS project for DfE: a validation workflow automates the open and close the official list of schools for the government. EduBase exposes web services and we are workin * Public Health England: we have complex data feed manipulation via reprogrammable javascript to manage annual data feeds for a 50+-year-old radiology epidemiology da * NSS project for OfS: A dissemination and online-analysis portal allowing stakeholders to critically analyse and measure their performance across NSS datasets. Texuna will use the most appropriate libraries and standards when building a new project. As an example, the GDS libraries were used to implement the Ofsted Fostering Da As an alternative, our Tweakaboo (https://www.tweekaboo.com/) Indeemo (http://indeemo.com/contact/) and EduKit (https://data.edukit.org.uk) projects are all mobile-r Texuna's experience covers a wide range of technologies needed to implement a web application. We demonstrated on GIAS how to develop API messaging between suppli Texuna is hosting platform-agnostic, with our applications typically designed to be cloud portable and independent. Traditionally we would have hosted applications on serv	
IDeA		LG Inform Plus	Please outline your organisation's experience	Texuna have 20 years experience in estimating and building complex projects and programmes of work, with most of these years including practical experience in governme To provide an example of the setup for the Ofsted project, Texuna started with a kickoff and initiation phase. An alpha phase was commenced to prototype user journeys, in * Planning and backlog grooming * Daily standup meetings * End of Sprint demo * Sprint retrospective Each sprint would have been deployed to a test environment multiple times per sprint to allow testing of specific elements. Once the sprint was completed the work was de Texuna are highly adaptable in implementing our approaches within the specific needs or restrictions of a client. As an example, the GIAS project dictates the use of specific	
IDeA		LG Inform Plus	Please outline your organisation's experience	Texuna is a data management specialist. We have a strong track record in the provision of data management and data warehouse solutions in the public and education secto Texuna adhere to the Open Data standard for build and implementation, having used Open Data patterns and libraries across projects at front-end and back-end. As open-s This approach increases data management flexibility, improves data quality and guaranties highest performance for RESTful API searches and GraphQL queries. System adm Jisc required an Enterprise Data Warehouse (EDW) to manage in-house data from disparate sources and to enable organisation-wide reporting on customer and financial m Texuna's Initial Teacher Training Data Management System (ITTDMS), which is NCTLs flagship data warehouse. It collects, integrates and collates data from a number of com Texuna currently work with University College Cork and Oxford Brookes University, helping them manage and analyse student data from admissions, UCAS clearing, enrolme	

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IDeA		LG Inform Plus	Please outline your organisation's experience	Texuna has 15+ years of experience running helpdesk services according to ITIL v3 best practices. Our helpdesk is certified by BSI to the ISO 2000-1 standard (Service Manag All queries received are recorded on our CRM ticketing system are issued an identifier used to record, track and follow queries from receipt through to resolution. Where there are technical issues with the system availability or functionality, these are raised with and managed by the Texuna service desk. Raised incidents can only be cl Tickets are escalated to the officers, tracked using an identifying number so that bi-directional communication is maintained and streamlined. All service queries for each pr Formalised processes ensure that all recorded incidents are assessed to determine root cause and that we address the root cause so that we prevent the recurrence of issue The service desk can provide a number of metrics in the form of monthly reports. We have a track record of 7 years of support services for the NSS project in addition to sup *Requests and incidents counts and statuses *Incident by priority and category *First Response *Times Issue *Resolution Times *Monthly availability Performance to KPI/SLAs Delivered System Exceptions Any new or additional content to benefit the project can be discussed and agreed. Reports can be made available in different formats as required. Important or sensitive iss Texuna monitor and manage our staff and their workloads through our regular weekly operations meeting where managers are able to report and identify and resource nee Texuna ensure that staff are cross-trained where possible so that knowledge is shared among project staff. This provides us with capacity among our employees to maintain	
IDeA		LG Inform Plus	Please outline your organisation's experience	Texuna has an extensive history of working with the local government sector in England, primarily in the educational sector. In 2008 Texuna developed EduBase2 which has In a recent endeavour with the DfE, the analysis of the Data Directorates Legacy Systems was in place. A full review and audit were conducted whilst carefully considering d For the Secure Access (SA) application, Texuna built a single sign on application for the DfE. This tool was used to gain access to 11 distinct DfE applications. Local authorities	
IDeA		LG Inform Plus	Please outline your organisation's processes	Quality assurance and security are fundamental to Texuna's processes. Texuna follows a formal secure development policy and development process that is audited and cer Project code and documentation are strictly version controlled, and held in a secure repository with access controls on a project/customer basis. Developed code and mana Texuna solutions include 3 separate environments: •Development - New code is first deployed to the development environment so that it can be rigorously regression tested by the quality assurance team using test data. Tes •UAT (User Acceptance Test) - Releases which are tested are deployed to the UAT environment for end-user / client testing usually against real data which is a copy of Produ •Production. - Live, Production, data is always protected during the development and quality assurance processes. Deployment of releases to Production is only made once Access to each of these environments is strictly controlled and open to only authorised users. Texuna system design defaults to "nothing-accessible and everything-auditable". This simplifies the data protection impact assessment, facilitating security and privacy by d •Encrypt or hash sensitive data where privacy is required •Separate the management of user mapping to groups from the management of access permissions with groups •Integrate to existing enterprise IAM if available (e.g. Active Directory) •Secure private data through restricted database views for Business Intelligence tools. Permissions are flexible and apply at multiple levels. Restrictions can be applied at the user group level and multiple groups may be supported. Safeguarding issues/data protection Texuna adopt "security-by-design" and "Privacy-by-Design" principles to ensure appropriate mechanisms to safeguard sensitive data under GDPR obligations. The following •Secure hosting – Texuna propose to host on AWS or Azure which are fully compliant with GDS guidelines. •Secure and robust database design and software architecture. •All data transmitted between the browser and the server via encrypted channel (SSLv3) •Specific data fields will be protected. Our discovery phase will include a Data Protection Impact Assessment to catalogue sensitive data and to determine which protection •Encryption or hashing in the database using a suitable algorithm such as AES256 or SHA256 •A least privileged access control policy •Strong password policy with the ability for users to change password if needed •Step-up authentication with MFA for power users	
Disclosure and Barring Service		Discovery and Disclosure	The solution must be certified to ISO IEC 270	Texuna and the services Texuna provide to customers, are all certified without exclusions by BSI to the ISO27001 Information Security Management System (ISMS) standard. AWS cloud hosting is ISO27001 certified and this will assure robust security architecture for any solutions that we manage and host. The AWS (London) region is covered by	

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Disclosure and Barring Service		Discovery and Disclosure	The solution must comply with at least the m https://www.gov.uk/government/publication	Texuna fully conforms to ISO 27001, 9001 and 20000-1 standards, and are audited and certified by BSI, with no scope restrictions. All staff in Texuna are fully trained in all st	
Disclosure and Barring Service		Discovery and Disclosure	The solution must be subjected to IT Health	Texuna commit to working on an ITHC as required, and have extensive history of participating in ITHCs and carrying out updates to systems to resolve any issues discovered.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must provide operational securi	Texuna fully conforms to ISO 27001, 9001 and 20000-1 standards, and are audited and certified by BSI, with no scope restrictions. To meet these 3 different standards, an in	
Disclosure and Barring Service		Discovery and Disclosure	The solution must provide operational securi	Texuna carries out penetration testing on all delivered solutions to ensure our software is secure from known vulnerabilities. From time to time our customers also engage	
Disclosure and Barring Service		Discovery and Disclosure	The solution must have appropriate Cyber Se	Texuna were awarded Cyber Essentials and passed compliance with the IASME Governance Standard. A copy of our certificate is available on request. The AWS network pro • Distributed Denial Of Service (DDoS) Attacks. AWS API endpoints are hosted on large, Internet-scale, world- class infrastructure. Proprietary DDoS mitigation techniques ar • Man in the Middle (MITM) Attacks. All of the AWS APIs are available via SSLprotected endpoints which provide server authentication. • IP Spoofing. Amazon EC2 instances cannot send spoofed network traffic. The AWS-controlled, host-based firewall infrastructure will not permit an instance to send traffic • Port Scanning. When unauthorised port scanning is detected by AWS, it is stopped and blocked. • Packet sniffing by other tenants. It is not possible for a virtual instance running in promiscuous mode to receive or "sniff" traffic that is intended for a different virtual insta https://d1.awsstatic.com/whitepapers/Security/Networking_Security_Whitepaper.pdf	
Disclosure and Barring Service		Discovery and Disclosure	The solution must mitigate against common https://owasp.org/www-project-top-ten	Our solution architecture protects the database from direct access via the internet so that it is isolated from potential attack. Our quality assurance processes verify that th	
Disclosure and Barring Service		Discovery and Disclosure	The solution must be able to store data that	All Texuna Departmental projects are at OFFICIAL-SENSITIVE level. In addition, all Texuna project staff are certified and have passed BPSS clearance.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must manage information in co	Texuna recognise our GDPR obligations as a data processor holding data with personal information, and understand how to protect commercially sensitive and personal dat	
Disclosure and Barring Service		Discovery and Disclosure	The solution will adhere to the DBS Data Ret https://www.gov.uk/government/publication	Texuna's solution allows for comprehensive rules to be implemented for data retention and archiving policy. The solution has full scope for client-specific policies to be impl	
Disclosure and Barring Service		Discovery and Disclosure	The solution will provide and implement a ba	Texuna's solution uses AWS S3 , MySQL DB, and Apache Solr as data storages, all can be backed-up. Also Solr data can be restored from the AWS S3 source data. Texuna use frequent backups intraday, week, month and year to provide a comprehensive audit trail of system state over time. We use the latest backups to facilitate disast	
Disclosure and Barring Service		Discovery and Disclosure	The solution will only store data within Unite	We can confirm that all Texuna's solutions are hosted in the AWS London data centre which is fully compliant with GDS and GDPR guidelines.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must prohibit unauthorised acc	Texuna implements a strict user name/password access to all systems. A hierarchical based security model (similar to the Windows LDAP Schema) is in place to manage the	
Disclosure and Barring Service		Discovery and Disclosure	The solution should ensure there is no loss o	All data is stored on encrypted AWS S3 buckets. The S3 Standard storage class is designed for 99.99% availability. Objects in AWS S3 buckets are automatically stored across Amazon S3 Standard is designed to provide 99.999999999% durability of objects over a given year. This durability level corresponds to an average annual expected loss of 0.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must encrypt all data storage at	Texuna automatically apply encryption to data at rest using FIPS 140-2 compatible encryption. Texuna automatically applies encryption to data at permanent and temporary storage, whether as digital objects or at database level. This would include: * AWS Simple Storage Service (S3 buckets) or AZURE Blob Storage Service Encryption. * Multi-AZ Relational Database Service (AWS RDS) PostgreSQL or Azure Database for Postgres storage encryption.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must encrypt all data in transit	Cryptographic controls are used for both data in transit and at rest, alongside attack-resistant infrastructure. Protections In-Transit that will be applied include: * SSL between web server and the authenticated user's web browser (TLS 1.2). * Data encrypted in transit - AWS Virtual Private Cloud and the Virtual Private Network (AWS Direct Connect IPsec using AES-256, SHA-256). * ETL local processing with data encrypted at rest (AES-256).	
Disclosure and Barring Service		Discovery and Disclosure	All data files loaded into the solution must be	Texuna's solution does not currently support virus scanning as an option. Instead, Texuna will work with the client to select a third party integration that will accomodate th	

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Disclosure and Barring Service		Discovery and Disclosure	The solution should have a retention policy f	The retention policy is customisable based on customer requirements. Texuna will work with Disclosure and Barring Service to design and implement a suitable data retenti	
Disclosure and Barring Service		Discovery and Disclosure	The solution should have functionality to ret	Texuna's solution will allow for customer data to be retrieved in line with Subject Access Requests. The timelines for these requests will be agreed with the client as part of	
Disclosure and Barring Service		Discovery and Disclosure	The solution should provide clear separation	eDiscovery/eDisclosure Service is a fully multi-tenant system. Data is clearly separated between tenants.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must be accessible from DBS (P	Texuna's solution is compatible out of the box with the suggested software listed. In addition, Texuna's solution can be installed within the on-premise environment as a sep	
Disclosure and Barring Service		Discovery and Disclosure	The solution will be accessible from untruste	Texuna actively manages information security risks at all stages of a project. The accessibility of the solution from untrusted devices would be one of these risks, our risk ma	
Disclosure and Barring Service		Discovery and Disclosure	Where the solution is accessible from untrus	Texuna's solution will allow users accessing from untrusted devices. It will incorporate additional controls for these user types to ensure that they are unable to carry out ce	
Disclosure and Barring Service		Discovery and Disclosure	The solution should provide the capability to	The system currently supports 2 factor authentication (2FA) via Google Authenticator OTP for all users.	
Disclosure and Barring Service		Discovery and Disclosure	The solution will only be accessed by authori	Texuna implements a strict user name/password access to all systems. A hierarchical based security model (similar to the Windows LDAP Schema) is in place to manage the	
Disclosure and Barring Service		Discovery and Disclosure	The solution should comply with Governmer https://www.gov.uk/guidance/accessibility-r	All of Texuna's projects are developed with accessibility in mind, and conformance with W3C guidelines to at least Level AA standard. In addition, we ensure cross-browser c	
Disclosure and Barring Service		Discovery and Disclosure	The solution must have a service manageme	Texuna has aligned its Service Desk facilities with the practices of ITIL v3 best practises and are certified to the ISO 2000-1 standard (Service Management) across all our ope All queries received are recorded on our CRM are issued an identifier used to record, track and follow queries from receipt through to resolution. We offer both telephone a Current SLAs in place are: Initial response to P1 1working hour Initial response to P2 4 working hours Initial response to P3 8 working hours P1 fault resolution 4 working hours P2 fault resolution 1 business day We are able to monitor and manage the queries received so that the service level is met and can provide reports on activity as needed.	
Disclosure and Barring Service		Discovery and Disclosure	The solution and supplier must be capable to	Texuna commit to being able to deliver emergency fixes within 24 hours of a decision to proceed. Texuna are ISO 20000-1 (Service Management) accredited, and our standa P1 fault resolution (e.g.an emergency affecting accessing the system for all users): 4 working hours P2 fault resolution (e.g. an emergency affecting the use of the system for some users, or certain areas): 1 business day. The 24 hour turnaround is longer than our standard SLAs, and we would recommend that these SLAs would be followed.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must provide appropriate syster	Texuna will provide maintenance releases in the live running phase on an ad hoc basis to resolve any identified bugs or system issues. All maintenance releases will be delive All planned maintenance activities will be scheduled to take place outside of regular working hours. Disclosure and Barring Service will be given notice in advance of regular Emergency or unplanned maintenance or additional deployments to resolve particular known issues will be delivered outside of normal business hours where possible. If ar To avoid periods of inactivity during upgrades and planned maintenance, critical parts of the system are deployed using a zero-downtime paradigm. The API is designed and	
Disclosure and Barring Service		Discovery and Disclosure	The solution will have support and maintena	Most of the project management and support and maintenance work for our UK clients are undertaken from the London office with support from other teams as needed. A	
Disclosure and Barring Service		Discovery and Disclosure	The solution must be capable of supporting a	eDiscovery is highly performant and can support more than 100+ users accessing the system concurrently with 1 CPU.	
Disclosure and Barring Service		Discovery and Disclosure	The solution must be capable of handling pro Approx. 100,000 documents artefacts loaded Approx. 200 email inbox artefacts loaded on Total uploaded data could be in the region of	Texuna's solution can process the relevant artefacts requested. In addition, the solution can process data in the region of terabytes. Moreover, we have a successful experie	

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	Sector	Solution	Question	Template Response	Picture number
Disclosure and Barring Service		Discovery and Disclosure	The solution must be available to users durin	Texuna has provisioned the Solution on AWS so that it is available on a 24/7/365 basis, with a high availability percentage of 99.9%. Typically Texuna Solutions have an availa	
Disclosure and Barring Service		Discovery and Disclosure	The solution will provide an audit log of all a	Texuna solution has multilevel audit trail. The audit trail is configurable to be as light touch or as extensive as required. Audit follows these principles: * User access control - so that permissions are granted to individual users so that the audit record shows the individual. * Accountability for all record updates and changes including additions and deletions, with online viewable/searchable audit history logs. * All data operations can be independently audited * Audit logs are themselves subject to access control management The above ensure that solution provides a complete audit trail that records: * who accessed the data * when the data was accessed, * what data was accessed * what changes were made The audit trail tracks access to data and this includes report generation so that it is possible to identify and analyse the reports generated out of the system as well as screen Audit, history and versioning features ensures all users actions are tracked so that there is a complete history of events and transactions undertaken with date and time star The Audit trail also tracks automated processes, such as web service interactions. Exact data sources and destinations can be traced to the date and time of the upload or d	
Disclosure and Barring Service		Discovery and Disclosure	The solution must provide the audit log infor	The audit trail includes a highly granular level of detail so that views or changes at field level will be recorded. Audit records are searchable using filters and subsets can be e	
Disclosure and Barring Service		Discovery and Disclosure	The solution should retain all audit logs for a	Texuna's solution will maintain all audit logs for a time period as specified by the client. In this case, we will retain all audit logs for a period of 6 months, after which they wi	
Disclosure and Barring Service		Discovery and Disclosure	The hosting provider should be able to accor	Texuna's solution will be hosted using AWS. Onsite auditing of AWS is not possible, but AWS cloud hosting is ISO27001 certified, with the AWS (London) region being covere	
Disclosure and Barring Service		Discovery and Disclosure	The solution will allow multiple users to acce	There is no limit to the amount of users that can be setup. Due to the cloud-based architecture of the system, scaling upwards is automatically done which allows a large an	
Disclosure and Barring Service		Discovery and Disclosure	The solution must be scalable to handle the	No matter the size of the user base or the data set to be indexed, eDisc solution is a highly scalable solution with the ability to facilitate changing client needs. eDiscovery solution has microservice nature, so it consists of several parts that can be deployed separately on different virtual machines (VMs) or physical machines (with o Parts of eDisc solution: 1)S3 object storage. It is a place where all documents are stored. There are two option: *Use client S3 storage if they have (Ceph with S3 interface, Minio or any other storage with S3 interface). This is the best option reduces DevOps resources and time. *Deploy S3 storage (minio) together with eDisc solution. This option requires at at least additional physical server with 4 CPU, 16GB and 1-3TB HDD (or better NVMe) (depe 2) Solr - search engine under the hood of eDisc. Better deploy it on separate VM with 4 vCPU, 16-32GB memory, and 500GB (depends on clients data size) NVMe storage for 3) eDisc core - consists of 3 microservices: a) eDisc frontend (Angular app served by Nginx); b) eDisc backend (Java app); c) MySQL DB (for Java app). All three can be deployed on one vm with 2 vCPU, 8GB, 100GB NVMe. 4) eDisc processor (Java app) - scalable part of application. Many instances of processors can work together on different VMS. eDisc processor performs all processing ops o 5) RabbitMQ - queue for jobs for eDisc processors, it links backend and processors together. Can be deployed together with edisc core to the same VM. All 2,3(a,b,c),4, 5 parts are delivered as Docker containers and can be deployed into Kubernetes cluster (or Docker Swarm cluster, or to be run manually). To be able to quickly respond to arising issues and possible error, logs are collected to: 6) Elastic search by fluentd and shown in Kibana. This requires an additional VM with 2-4 CPU, 4-8GB, 500GB HDD (or SSD).	
Disclosure and Barring Service		Discovery and Disclosure	The solution must manage information in co	Texuna have Cyber Essentials Scheme GDPR Certificate that is available on request. Texuna recognise our GDPR obligations as a data processor holding data with personal information, and understand how to protect commercially sensitive and personal dat	
Disclosure and Barring Service		Discovery and Disclosure	The solution and business processes must co	Texuna are certified by BSI under ISO 9001 for quality management. A copy of our certificate is available on request.	
Disclosure and Barring Service		Discovery and Disclosure	The solution provider should hold Cyber Esse	Texuna were awarded Cyber Essentials and passed compliance with the IASME Governance Standard. A copy of our certificate is available on request.	

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Disclosure and Barring Service		Discovery and Disclosure	The hosting should have BCP/DR arrangemer	High availability within the AWS region is ensured by AWS services and solution design. AWS has only one region within the UK hence if the entire region is down the only possible DR scenario is to restore solution to the next region (Ireland). AWS S3 buckets ca Texuna as a company operates robust BC processes, with policies in place to ensure a continual operation in any eventuality. These BC processes have been regularly audite	
Disclosure and Barring Service		Discovery and Disclosure	The solution must comply with NCSC Cloud S https://www.ncsc.gov.uk/collection/cloud-se	Our architecture exceeds that of the UK Government 'OFFICIAL' classification guidelines produced independently by: * National Cyber Security Centre (NCSC) Cloud Security Principles. * Center for Internet Security (CIS) Critical Security Controls.	
Royal Holloway and Bedford New College		Business intelligence software development services	Evaluating Data and Reporting, including Stu For one of your contract examples provided The maximum length for this example is 4 pa	https://docs.google.com/document/d/1X6S2FgG3t0-r5qlm5Pgk2_qPC_EKbRi-8lthIL3Nuzw/edit	
Royal Holloway and Bedford New College		Business intelligence software development services	Delivering a Business Reporting Tool (15%) For one of your contract examples provided The maximum length for this example is 6 pa	https://docs.google.com/document/d/1xHirSy6PKfY96E6Ima4mtp8xp4ITa2GQB0zJ_wHvMj0/edit	
Royal Holloway and Bedford New College		Business intelligence software development services	Implementing Data Warehousing (10%) Describe how, when delivering one of y0ur c The maximum length for this example is 4 pa	https://docs.google.com/document/d/1-B-c07CAoI86d9gnTOvHMijwVQ4ZRAnMJNYFNagZpak/edit	
Royal Holloway and Bedford New College		Business intelligence software development services	Importing Student Data (10%) Describe how, when delivering one of y0ur c The maximum length for this example is 4 pa	https://docs.google.com/document/d/1yzqJkbU5BJadcndF-nTztiDxpAtgRtoavWUb3LwNCyc/edit	
Royal Holloway and Bedford New College		Business intelligence software development services	Reverse engineering Business Objects (20%) Describe how, when delivering one of y0ur c The maximum length for this example is 6 pa	https://docs.google.com/document/d/1Zmhd9RMA-B5JUMXwt_QdgGc9D9APxjsZP_Oe-ElsCB8/edit	
Royal Holloway and Bedford New College		Business intelligence software development services	Data Protection Y/N (Pass/Fail Question – Fai Do you have a policy for General Data Protec Yes or No. Please provide your policy.	Yes	
Royal Holloway and Bedford New College		Business intelligence software development services	Data Protection (20%) Describe how, when delivering one of the co The maximum length for this example is 6 pa	https://docs.google.com/document/d/1fPtq_Ve3H4X8sHx1JPAOIeuvm6u6SNQQ77Gu7a7bmvI/edit	
Royal Holloway and Bedford New College		Business intelligence software development services	Data Governance Solution (10%) Describe how, when delivering one of your c The maximum length for this example is 4 pa	https://docs.google.com/document/d/1ENRuqGQftKAc7PZw5kKvGVXXK8AqggfhRLiXbi0WjgQ/edit	

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Royal Holloway and Bedford New College		Business intelligence software development services	Partnership and Service Management (10%) Describe your organisation's approach to Par The maximum length for this example is 4 pa	https://docs.google.com/document/d/1lhbzUveCVMwn9MduIy7oH2WqZuxNCNSMsT-E65JJuTc/edit#	
Manchester Metropolitan University		DPS	Lot 1 – Consulting ServicesIs the provision of	Texuna's Business Analysts enable build of effective solutions that meet business and user needs. Having delivered full data projects in the Education sector (15+ years). Tex Texuna worked with Jisc and conducted 4-month discovery phase to analyse all source systems, looking at governance, data owners and future directions for upgrades and	
Manchester Metropolitan University		DPS	Lot 2 – Development ServicesIs the planning	With 20-years successful (from start to finish) bespoke software experience, Texuna's methods have been refined for digital-only, cloud-first, mobile-ready agility. We use co Texuna has vast programming expertise with deep Java and Javascript experience, particularly in frameworks like AngularJS, React.js, and Node.js. Texuna sometimes use Py As a vendor-neutral solutions integrator, we continually search for the "best of breed" for our clients. We provide the best value for money, "achieving more for less" with a Our projects typically include hard deadlines. We have a strong track record of on-time delivery. Texuna have successfully delivered discovery/alpha/beta/live projects to the	
Manchester Metropolitan University		DPS	Lot 3 – Integration ServicesIs the planning, in	Continuous Integration Continuous integration is performed throughout code development. Unit tests are valuable assets for the Continuous Integration (CI) as they are reused. On a code commit Source code Texuna extensively use GIT as our distributed revision control and Source Code Management (SCM) system. We collaborate and share resources with clients by typically usir Documentation management Document management and control can be done through a combination of Github, Project wiki, Sharepoint, or any other tool desired. For example, Texuna have already wo	
Manchester Metropolitan University		DPS	Lot 4 – Professional and Support ServicesIs t	Texuna have full-time multi-disciplinary staff who provide project and service continuity. Texuna work collaboratively on an open book basis as an extension of the client tea Our specialised handover workshops with small teams assure knowledge and understanding is transferred and verified. We provide sufficient video and wiki documentatior For example Texuna worked collaboratively onsite with Jisc over 2 years to deliver EDW. We introduced terms, methods and formal roles in Agile Scrum to the in-house tean	
Manchester Metropolitan University		DPS	Lot 5 – Managed ServicesLot 5 – Managed Se	Texuna ethos is to deliver excellence in everything that we do and we ensure that the effort expended on our standards delivers real value to clients. Our history shows our Savings are generated as our aligned design and delivery methodology means existing user research can be built upon rather than revisited. The team will find the process Texuna have built a suite of automation so that we can implement Infrastructure as code. This brings significant savings and quality assurance to the deployment of a sophis We eliminate time on non-value-added activities. For instance, through the commitment to a Capped Time and Materials contract and the use of a standard blended day ra Lastly, by implementing from and contributing to open source GDS frameworks and through the use of APIs we promote reuse and flexibility.	
Manchester Metropolitan University		DPS	Lot 1 – Functional TestingThe creation and ex	Texuna look to validate each release through our experienced QA team by implementing a variety of manual and automatic testing procedures. Automated testing procedu Testing will be accompanied by a specific test plan and test cases for each release. Test plan will specify the features that the implemented solution will be measured and te - Objectives - Types of testing - How the test is conducted - Entrance Criteria - Acceptance Criteria - Resource required - Error reporting and correction procedure - Test schedule - Test scenarios, scripts and test data - Responsibilities and obligations of each party This will measure the system against key product quality criteria. An agreed sign-off for the test plan will be required to establish a key measure of quality for the implemen	
Manchester Metropolitan University		DPS	Lot 2 – Performance TestingThe provision of	Texuna incorporate a multi-tiered automated testing approach on data and code releases in standardised work processes that are BSI audited for ISO compliance. The proce We conducted performance testing for the following systems: • Initial Teacher Training Data Management System (ITTDMS) • Lifelong Learning UK (LLUK) • DfE's Secure Access (SA) • Get information about schools (GIAS) • Ofsted - The Fostering Data Collection • National Student Survey Results Portal (NSS) • DfE's Item Bank Regular performance testing was carried out on the DfE's Secure Access. Besides standard user login scenarios by different services, it included high load password reset sce Reports contained full performance testing process starting with requirements, architecture/environment and finishing detailed results and conclusions.	

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	Sector	Solution	Question	Template Response	Picture number
Manchester Metropolitan University		DPS	Lot 3 – Automation FrameworksThe provisio	Texuna employ rigorous testing at all tiers using automated and manual tools that precede any deployment to customer accessible test environments to maintain our strong Texuna migrates continuously to improved and modern testing frameworks depending on individual project requirements: • SonarQube - open-source platform for Continuous Inspection of code quality • JUnit - unit testing framework for the Java programming language • Mockito - Mockito library enables mocks creation, verification and stubbing in unit tests • FitNesse - fully integrated stand-alone acceptance testing framework and wiki (NCTL) • Canoo Webtest - free Open Source tool for automated testing of web applications in a very effective way (NCTL, LSIS, GIAS, DfE SA) • Watir - open-source Ruby library which helps to achieve cross-browser automation testing (Bosco, DfE ItemBank, PHE) • PyTest Selenium and Allure - Python framework for running Selenium-based tests (cross-browser automation testing) (JISC, EduKit, Ofsted, OBU, LMU) • Jenkins CI - leading open-source continuous integration server, which is used for automatic execution of unit and regression tests Texuna has developed a system for continuous automatic testing of ETL transformations for Jisc EDW project. The framework simplifies test development, testing each data	
Manchester Metropolitan University		DPS	Lot 4 – Managed Test ServiceOngoing manag	Texuna's project life cycle is modeled around Test-Driven Development and Agile methodology. This provides a process of constant testing and rebuilding within iterative de We automate regression testing against all code commits. In areas to evaluate User Experience and undertaking User Acceptance Testing with 3rd parties, Texuna have work	
Manchester Metropolitan University		DPS	Lot 5 – Project TestingProvision of testing ser	Each specific piece of new functionality or defined requirements undergo several tests. Texuna outline the steps to follow for users to test against the functionality being de Texuna aim to take a two-tier testing approach. The first tier involves the development team implementing automated tests for functionality and having those validated by t Texuna actively deliver on GIAS (since 2008) using Scrum agile methodology. We develop and test the back-end services for GIAS and expose an API to a Single Page App fro	
Manchester Metropolitan University		DPS	Lot 6 – Test Strategy ConsultationProvide con	Texuna look to validate each release through our experienced QA team by implementing a variety of manual and automatic testing procedures. Texuna have incorporated m • Functional • Graphic user interface • Accessibility • Integration • Configuration check-ups • Performance • Penetration • Disaster recovery Input and result (test criteria) data values can be stored in one or more central data sources or databases, the actual format and organization can be implementation-specifi Texuna operate a 5 tier testing framework as follows: 1) Developer: Unit tests 2) Tester/QA: Functional/regression testing 3) Business Analyst: Business/data testing 4) Customer: Acceptance testing 5) User: User acceptance testing Texuna employ rigorous testing at all tiers using automated and manual tools that precede any deployment to customer accessible test environments to maintain our strong	
Manchester Metropolitan University		DPS	Lot 4 – Machine LearningIn simple terms, m	Texuna has experience working with machine learning technologies. Texuna work with Oxford Brookes University and London Metropolitan University to deliver reporting a For unstructured content Texuna have worked with generative probabilistic clustering such as the Latent Dirichlet Allocation model as a form of unsupervised machine learn	
Manchester Metropolitan University		DPS	Lot 5 – Natural Language Processing (NLP)NL Examples include consumer products such as https://www.terminalfour.com/blog/posts/b	Texuna has experience working with natural language processing and machine learning technologies. As part of our work with Jisc, Oxford Brookes and the DfE, we have use *Python's Juypter Notebooks with packages such as Natural Language Toolkit (NLTK), TextBlob, CoreNLP, Gensim, spaCy, polyglot *R with packages such as (tidytext, dplyr, tidyr, broom, ggplot2) *Pentaho Data Integration to securely parse data mined to secured sources.	
Manchester Metropolitan University		DPS	Lot 8 – Advanced Data AnalyticsThis area of	In the past, Texuna integrated disparate dataflows to deliver novel sector-wide processes for funding, performance tables and ministerial questions. Today Texuna offer clou Texuna has experience in working with data, text mining and data visualisation projects. As an example, Texuna has a strong history of working with universities, supporting For unstructured content Texuna have worked with generative probabilistic clustering such as the Latent Dirichlet Allocation model as a form of unsupervised machine learn Texuna worked with The Office for Students (OfS) to deliver a best practice Repeatable Analytical Pipeline that analyses and disseminates the National Student Survey quant	

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Anglia Ruskin University		Student Placements Software as a Service	Please indicate how you would utilise your e	Texuna has, in conjunction with an Irish university, developed a placements and allocations system called PALM. This system allows universities and associated partners to li	
Anglia Ruskin University		Student Placements Software as a Service	Based on our requirements, please indicate your expected timeframe for implementation and the go live date for the system - please also attach an indicative project plan with the tender.	Texuna proposed a 4 phase plan for the development and delivery of a production ready system. These phases would be broken down as follows: 1) Discovery & Design Phase: This includes project kick-off. Texuna will work closely with ARU staff to finalise a full specification of minimal requirements for a production sy 2) Development Phase: Development will commence as soon as initial designs are available from phase 1. We operate in an agile manner, with 2-3 week sprints being carrie * Account creation and integrate the system with Microsoft ADFS authenticator * Manage staff roles * Allocate students to placements (detailed form, audit, bulk upload, validations) * Approval process workflow * Filter students and placements * Timesheets upload/download * Placement evaluation (survey) * Reports functionality 3) Testing & Verification Phase: Texuna will engage in testing and verification throughout all phases of the project. Each sprint will include testing as part of the sprint task its A small development window is available to resolve errors discovered as well as introducing limited updates as needed. At the end of this phase a formal UAT needs to be carried out by the client, at the end of which sign-off will be needed to prepare for the 4) Go-Live Phase: The final phase of the project will be go-live. At this stage, the system will be built and is in its production environment ready for end users to engage. Texu 1) User manuals and instructions 2) Training and handover guides for client team 3) Training and handover guides for IT teams 4) Bug fixes and help for live environment maintenance during handover Post go-live will become business as usual. At this point the service will be live, with dedicated Texuna PM still available to ARU at all times. A Gantt chart outlining this proje	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate the type and level of support	Texuna will provide up to 8 staff members working in parallel to deliver the solution for ARU, with the following roles being filled: * 1 x System Administrator * 3 x Developers * 1 x Senior Architect * 1 x Tester * 1 x Project Manager * 1 x Business Analyst In addition, a contract manager will be assigned for ARU, and Texuna's CEO, Patrick Lynch, will be available as Project Director as needed. Not all roles will be needed full tim Texuna will agree with ARU on a suggested level of involvement with ARU once initiation phase has commenced, but at a minimum we would expect the following: * 1 x dedicated contact, who will act as the project lead for ARU. Ideally this would be somebody who would be available to Texuna day-to-day, and would be a member of t * 1 x technical contact, who can act as the liaison between Texuna and ARU's IT team. This can be the same as the dedicated contact, above. Texuna will need to liaise with t * ARU will need to provide additional staff members on an ad-hoc basis to address specific elements of the work. Staff members who can provide insight into the various us	
Anglia Ruskin University		Student Placements Software as a Service	Please describe the training you would provi	Texuna will provide training to ARU as part of the handover phase in a number of ways. As part of the formal handover process, Texuna will carry out onsite training with ke	
Anglia Ruskin University		Student Placements Software as a Service	Please advise how you will assist ARU staff in	Texuna understands that currently placement information is stored in the form of Excel spreadsheets, coupled with data from existing SITS system. Data is taken from the SI Data that is currently stored in local spreadsheets and maintained fully manually would be uploaded to the new placement system using importing functionality, with the da	
Anglia Ruskin University		Student Placements Software as a Service	Please show a screenshot of a typical landing	Screenshot included. The typical landing page for an administrator will be customisable for each administrator. The attached screen shows some of the dashboard elements which are available t 1) Current student numbers who are placed or unplaced 2) Current providers (i.e. placement providers/companies/etc) who are currently participating or not 3) Messages and actions assigned to administrator or others 4) A map showing the breakdown of opportunities (can also show breakdown of current, active placements or a combination) 5) Calendar showing upcoming key dates 6) Breakdown of current applications by their current application status 7) Breakdown of current opportunities by their current overall status Additional elements can be added to meet the needs of ARU. A default view of the dashboard/landing page would be agreed with ARU, but admin users will be free to add,	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how the system can display a	The PALM system currently has opportunities marked against specific organisations/companies, with a specific region (or regions) for that company also used (e.g. Company	

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Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system manages d	The current implementation of the PALM system is based on placements as part of a sandwich year. This implementation is not rigid though, as all placements entered are f	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system would diffe	Similar to how we plan to display placement opportunities by course (4.2.2), it will be possible to list an opportunity under a specific discipline or disciplines as deemed nec	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system allows staf	The PALM system will allow admin users to maintain student records starting with minimal information (e.g. pre-registered students) and allow those records to be updated	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system allocates st	The PALM system currently allows for students to be allocated to a placement in a number of ways: 1) A student applies for an opportunity, the admin team places the student. 2) A student applies for an opportunity, the company/organisation confirms and places the student. 3) A student finds an opportunity themselves, the admin team confirms and places the student. 4) The admin team directly places a student into a placement without the student applying directly. All of these options are essentially subsets of the overall functionality available, and all elements will be possible for ARU students. If needed, ARU students will be able to a 1) Admin team creates the details of the placement (including the type of placement, courses it applies to, disciplines it falls under and associated dates for the placement). 2) Student applies for the placement (if necessary) 3) Admin team (or organisation team, as preferred) review the applicants/students and make a decision as to who they want to interview or review further. 4) Interviews/further reviews are carried out and a decision is taken as to whether or not the student can be placed. 5) The student is placed onto the opportunity, which generates a formal placement record. 6) The formal placement record can be amended by admin users until the placement starts. At this point, the placement is active, and the actions available are limited to ce	
Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system deals with stu	The PALM system currently does not have functionality in place for placement rotation, however a simple solution would be to allow for concurrent placements for students 1) If a student is on no placement, then their calendar entry will be blank for that date. 2) If a student is on one placement only, then their calendar entry will show the placement as being active for the whole period in question. Admin users can, if needed, upd 3) If a student is on two or more placements concurrently, then the admin user will be forced to specify the dates that each placement is active for before the placements ca 4) A student can not be on the more than one placement on the same day (if this is a possibility that needs to be addressed then we can ensure that is possible).	

Anglia Ruskin University		Student Placements Software as a Service	Please detail how your system manages a change to a placement. (E.g. If the placement is no longer available or has a substantial change. How does the system notify administrators that students placed may need to be placed elsewhere)	Changes to placements that are not yet active (i.e. those with start dates in the future) can be made as often as the admin team sees fit, provided the changes do not result
				
				If a change is made to other types of records on the system that will affect placements, the default behaviour would be to prompt the user with an option to either delete th
				1) A placement opportunity was created for all students on course CR101. 10 students were placed on this placement, which is due to start in the future.
				2) A decision is taken to close course CR101, with all students on that course being migrated to course CR102.
				3) The admin user attempts to move the students to CR102 course.
				  3a) The system prevents this, as the students have placements valid which expects CR101.
				  3b) The system will prompt the user to either accept the movement, which will remove the students from the placement, or they can cancel which will allow them to edi
				4) The admin user attempts to delete the course CR101.
				  4a) The system prevents this, as there is an active placement for CR101.
				  4b) The system will prompt the user to either accept the deletion of CR101, which will also delete the placement opportunity, or they can cancel which will allow them to
				
				An additional element which can be introduced would be to associated specific users with certain courses, placements, students and so on. This would make that user ultim	

Anglia Ruskin University		Student Placements Software as a Service	Please indicate how your system's view can b	The PALM system will filter views in 2 separate ways. The first is a global filter which will narrow the information available to users by specific areas. In advance of developm During the usage of the system, users can also filter data that is visible to them on any form that is needed. The exact filters to use will be agreed by ARU, and filters can be 1) Exact match of a specific value (e.g. course must be CR101) 2) Exact match of multiple values (e.g. course must be CR101 or CR102) 3) "Like" match of text (e.g. all values where the first name is like Pete; results will include Pete, Peter, etc) In general filters operate as an AND check, meaning all specific checks must match for results to be displayed. If OR check is needed (i.e. only 1 of the options must match) t	
Anglia Ruskin University		Student Placements Software as a Service	Describe how your system differentiates betw	On creation, the PALM system will assign a student with a specific indicator which identifies what overall course they are on. This is usually based on the course subject plus	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system stores deta	On the PALM system a placement record is a record which holds the details of a specific student on a specific placement opportunity. A student can hold many placements, In general, the expectation is that once a placement is created, the concrete details of the placement (i.e. the student who is on placement, the location and information on	

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Anglia Ruskin University		Student Placements Software as a Service	Please indicate how your system facilitates b	The PALM system will allow for the bulk allocation of students to a specific placement opportunity. The placement opportunity, when added, will have a number of criteria a	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate how your system stores (in w	The start and end date of placements are stored as simple date values, in the format DD/MM/YYYY. There has not been a need to store in any more accurate a format than	
Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system stores the typ	The type of placement will be held as a lookup value. Lookup values allow the admin users to populate new types of placement or archive existing types as needed, with the	
Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system enables adm	Screenshot included. The PALM system currently includes a document viewer, which will allow the end user to upload documents of specified types (typically .doc, .docx and .pdf - exact list can b	
Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system notifies admi	Notifications within the PALM system are currently designed to be passive, rather than direct. When admin users log into the system they are presented with a dashboard w In addition to these passive notifications, a series of active notifications can also be considered, which would involve the generation of automatic emails and/or pop-up noti 1) Alerts when a placement opportunity is due to start, but where there are no students placed. 2) Alerts when a student has 2 or more concurrent placements, when the active days have not yet been set (see 4.2.7 for more). 3) Alerts when a reduced student record (i.e. not all information available, see 4.2.5 for more) has been added to a placement, and the placement is now within a certain nu	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system manages m	The PALM system currently manages mandatory pre-placement checks as a series of checkboxes on the placement record itself. When a placement opportunity is created, t The system will flag up any placements where a student has not had all pre-requisites completed for admin users as a dashboard element, and active notifications can be co	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system limits the c	When a placement opportunity is added to the system the admin user can specify an upper limit on the number of students allowed. The admin user can also, if needed, ha When a limit has been set for a placement opportunity, the system will prevent users from adding any students to the placement once the limit has been reached. Admin us	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate how your system allows adm	There are 2 options available to ARU for this requirement. The first, and most simple, is to simply record each distinct area as a placement organisation (e.g. "Ward A, Hospi The alternative approach, which PALM uses as the default, is to allow organisations have multiple locations. The setup would be that a main organisation would be created	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate how your system allows adm	Screenshot included. The PALM system will allow admin users to access data on placement opportunities and active placements in a number of ways. Attached is a screenshot of the current PAL 1) Partners menu - this is the terminology used for placement providers. All active opportunities and ongoing placements specific to the provider can be found under this m 2) Students menu - this will show all students (current and past). Active, planned and historic placements for each student can be found under this menu item. 3) Applications menu - this will show all placement opportunites that have been applied for by students (i.e. where the student has requested to be on a placement, but a d 4) Opportunities menu - this will show all placement opportunities that remain open for application (i.e. placements that will take place in the future that still have capacity 5) Placements menu - this will show all active, upcoming and historic placement records. This can be filtered by student course, discipline, placement provider, etc. The usual navigation path to view specific placements are either via the student menu or partners menu, depending on whether the admin user is focusing more on the stu	
Anglia Ruskin University		Student Placements Software as a Service	Please show a screenshot of a typical landing	Screenshot included. The PALM system currently presents students with a dashboard of current data, including a breakdown of their current placement details, opportunities which are avaialble	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system allows stud	The PALM system will provide the student with easy access to a placement record, which is a record of their specific placement with a particular provider. A student can hav	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system informs stu	The PALM system will provide an automated notification (likely email) to the student when a student is added to a placement. This will include relevant information the stud The exact content, frequency and details of the emails will be agreed between Texuna and ARU.	

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Intro			Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.		
Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system manages stud	Screenshot included. The PALM system currently includes a document viewer, which will allow the end user to upload documents of specified types (typically .doc, .docx and .pdf - exact list can b If a form directly on the system is the preferred method for implementing timesheets, then this can be considered and discussed with ARU.	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system notifies stu	The PALM system will track the various changes that occur to a student's placement allocation as events occur. The exact statuses will need to be agreed with ARU, but a sug 1) When an application is submitted for a placement (if that approach is allowed) 2) When an application is confirmed for a placement (if that approach is allowed) 3) When a student is placed into a specific opportunity 4) If placement details are altered after the student has been placed 5) Timely notifications of upcoming events (e.g. a 1 week reminder that a placement will start) The notifications can be generated with content agreed by ARU, and can be presented to the student via the system directly (i.e. on screen when the student logs in), email	
Anglia Ruskin University		Student Placements Software as a Service	Please show a screenshot of a typical landing	Screenshot included. The typical landing page for a placement provider is currently designed to be essentially the same as for administrators, with the restriction that they can only carry out acti 1) Current student numbers who are placed or unplaced 2) Current providers (i.e. placement providers/companies/etc) who are currently participating or not 3) Messages and actions assigned to administrator or others 4) A map showing the breakdown of opportunities (can also show breakdown of current, active placements or a combination) 5) Calendar showing upcoming key dates 6) Breakdown of current applications by their current application status 7) Breakdown of current opportunities by their current overall status Additional elements can be added to meet the needs of ARU. A default view of the dashboard/landing page would be agreed with ARU, but users will be free to add, remov	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system allows the	When a placement opportunity is added to the system the placement provider admin user can specify an upper limit on the number of students allowed. The user can also, When a limit has been set for a placement opportunity, the system will prevent users from adding any students to the placement once the limit has been reached. Admin us A possible additional element would be for the admin user to also be able to set global upper limits for placement opportunites per provider (e.g. provider A can only ever s	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate how your system displays diff	PALM uses a system whereby organisations have multiple locations. The setup would be that a main organisation would be created (e.g. Hospital X), within which multiple l	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system notifies pla	The PALM system will track the various changes to a placement as events occur. The exact changes that will result in notifications will need to be agreed with ARU, but a sug 1) When an application is submitted for a placement (if that approach is allowed) 2) When an application is confirmed for a placement (if that approach is allowed) 3) When a student is placed into a specific opportunity 4) When a student is withdrawn from a specific opportunity 5) When the capacity of a placement opportunity is reached 6) If placement details are altered after students have been placed (usually we would not notify the user who has made the changes, but would instead notify the other use 7) Timely notifications of upcoming events (e.g. a 1 week reminder that a placement opportunity will start where there is still open capacity) The notifications can be generated with content agreed by ARU, and can be presented to the user via the system directly (i.e. on screen when the user logs in), email notific	
Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system manages reg	The PALM system will track the various changes to all relevant data at all times (e.g. student data, placement opportunity data, active and historic placements and so on). Th 1) A regularly scheduled update to appropriate users providing general information to users (e.g. a monthly snapshot of students on placement, a weekly snapshot of active 2) A regularly scheduled update to appropriate users providing action points to users (e.g. a monthly email to students to remind them to apply for places if they haven't ye 3) An automated update to appropriate users providing information on specific events which may occur (e.g. as per 4.2.25 & 4.2.29) 4) Ad-hoc emails which can be generated by the admin team - meaning admin users can use the system to draft up and send out notices to users as necessary. These emails	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system shows the	On the PALM system a placement opportunity is a listing for the placement that is upcoming, including the dates, courses associated with, capacity and so on. A placement 1) Navigating to the student records to view individual records 2) Navigating to the placement provider record to view a list of all placements for that provider 3) Navigating to the placement opportunity record to view the list of all placements that were agreed between the provider and students. The relevant information from the placement opportunity will be displayed on the placement record, meaning users will not need to refer back to those other records to re	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system presents al	Placement information is presented to users in a number of different ways, depending on the user type. For student users, all upcoming placements that the student has be Placement provider users will be presented with 3 sets of data, the first being all placement opportunities that are upcoming and still need to be filled (i.e. these are opport Admin users will see the same sort of information as provider users, but not restricted to just their provider.	

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Anglia Ruskin University		Student Placements Software as a Service	Please confirm that your system is fully comp	Screenshot included. Texuna has used modern UI frameworks such as Angular and ReactJS with Bootstrap to build the UIs for the PALM system. The following browsers are our minimum suppor * Chrome (version 45 and later) * Firefox (version 38 and later) * Microsoft Edge (version 12 and later) * Internet Explorer (version 10 and later) * Safari (version 9 and later) * Opera (version 30 and later) It is likely that our tools will work with other browsers and earlier versions of the above, but these are our target platforms. Should this list need to be extended to meet spe	
Anglia Ruskin University		Student Placements Software as a Service	Please confirm that your user interface is res Please provide a screenshot of the mobile op Please indicate if any functionality is not ava	Screenshot included. Texuna has used modern UI frameworks such as Angular and ReactJS with Bootstrap to create a responsive user interface which will work across different mobile devices. B * iOS (version 9 and later) * Android (version 4.4 and later) A screenshot is attached showing the admin homepage from a mobile perspective. There is no functionality unavailable on a mobile device.	
Anglia Ruskin University		Student Placements Software as a Service	Please confirm that your system allows end-d	The PALM system supports partial saves of data in most cases. PALM is designed to prevent certain statuses being used unless all required fields of data are populated (e.g.	
Anglia Ruskin University		Student Placements Software as a Service	Please confirm that your system auto-popula	The PALM system operates on a basis that information should, where possible, only ever need to be entered once. This means that a student record can be created, and wh In certain circumstances, data that is shared between records can be edited, as the data can differ from record to record. As an example, a placement record might hold the	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate if information that is manage	The PALM system can be easily configured so that data which originates from an external source is displayed in a different manner to that information which originates from	
Anglia Ruskin University		Student Placements Software as a Service	Please describe the search/reporting capabil	Texuna has extensive history across a range of products of providing a system which allows users to pull a series of reports and information in a combination of both simple 1) Simple and complex searches of all data types for ad-hoc viewing (e.g. searching and narrowing down on students by a range of fields. 2) Simple and complex searches which the users can save (e.g. an admin user might always need to find students linked to a particular course where the student is not yet p 3) Simple and complex reports which the admin users can create for their own use on an ad-hoc case 4) Simple and complex reports which the admin users can create for their own use which they can save. Admin users can save reports for their own use or share them with 5) For highly complex and specific data needs, Texuna will work with ARU to specifiy the exact needs and can create these built-in reports for use by specific end-users as de	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate whether reporting is perform	All reports is performed against live data, provided the data has been saved. Specific constraints will be agreed between Texuna and ARU to ensure that the correct statuses Point in time snapshots of data will be taken as a backup and recovery process, but will not be used for the reporting purposes.	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system will help th	Texuna's experience of HESA and Data futures/HEDIIP is based on collecting, integrating, analysing and disseminating statutory submissions over 15 years. We are part of th Concerning the Data Futures programme, Texuna are already engaged through existing projects with Oxford Brookes University and London Metropolitan University. We are Texuna have mapped different university data schemas to the HESA Data Futures data model, and have developed a general approach to linking student, module, course an * Transparency of data, lineage and creation of a data catalogue * Interacting with institutional tools which store data in ways not always designed for sharing * Interacting with users of institutional tools and helping ensure that data is coded for learner analytics * improving upstream data quality and implementing robust data transfer processes to support analytics * consider ethical issues so that analytics are action focused rather than demographics based * Align with internal university ethical practices. As part of the project discovery and design phase a data model will be created. The data model will be based on the pre-existing workflows carried out via spreadsheets and	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how your system stores and This is for information only.	The PALM system allows for placements to be recorded against any number of locations, there is no restriction on the location. The system will, provided a valid address is p	

Intro	Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.				
	Sector	**Solution**	**Question**	**Template Response**	**Picture number**
Anglia Ruskin University		Student Placements Software as a Service	Please describe the process for making chan	The agreement which Texuna would look to make with ARU would be to provide an initial build of the PALM system, incorporating all requirements for ARU, as well as bran It should be noted that the offering to ARU will be a tailored system specifically for ARU. Texuna would expect to carry out all maintenance and development work, with ARl	
Anglia Ruskin University		Student Placements Software as a Service	Please describe your planned areas for devel	The PALM system which will be delivered here will be tailored specifically to ARU's needs. As such, the direction of development over the next 36 months will be driven by A Ongoing maintenance, bug fixes, patches and testing would be carried out as part of our main fee, and no extra charge would be associated with those items.	
Anglia Ruskin University		Student Placements Software as a Service	Please describe the training you would provi	Texuna will provide training both to the University admin team and any help-desk users which may be needed. Our general approach would be to offer training through a m * Onsite training with the main ARU project team as part of an overall go-live process. This would be carried out before the system is implemented, and would be used as a * Manuals and user guides that are updated on each major release. * Videos for end users which are updated on each major release. Our focus in training prior to go-live is to ensure that all members of the ARU team are fully briefed in the use of the system, and training is carried out in a train-the-trainer Once the system is live, Texuna's primary focus regarding training will be to keep the user guides, manuals and videos up to date as new features are implemented and dep The cost for all pre-release training will be incorporated into the ongoing charge outlined in the price section. Post-release, the updating of user guides, manuals and videos	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate whether your system include	All Texuna systems will provide 3 separate environments for use by the client. These are split as follows: * Dev. This is where the first builds of a new feature are deployed for testing to ensure the specific elements meet client expectations. This environment is available to mem * UAT/Pre-Production. This is where final overall builds of the system are deployed prior to a release to Production. All elements of the system must be tested by ARU in this * Production. This is the live system. Texuna will have no access to this environment.	
Anglia Ruskin University		Student Placements Software as a Service	Do you host the service directly or use a thir If hosting directly, please indicate the tier of	Texuna host projects using Amazon Web Services and Microsoft Azure. We provide these services on a fully managed hosting basis. We guarantee that our hosting is provid Texuna will comply with any timelines that may be specified for hosting migration. Texuna is both a qualified AWS Consulting Partner and an experienced Azure practitioner (working with DfE). Given our client focus, vendor neutrality, and open-source exp	
Anglia Ruskin University		Student Placements Software as a Service	Please describe the high-level architecture o	Screenshot included. The application frontend is hosted on Amazon S3 with Amazon CloudFront to serve HTTPS. Amazon S3 and Amazon CloudFront provide very reliable hosting for the applicat The application backend is served by Amazon API Gateway service, specially designed to expose RESTful API services to the Internet. AWS Gateway API is an industry-leading The Amazon API Gateway endpoints are container services running on Amazon ECS in different availability zones, accessible via Network Load Balancer for high availability. All services are provisioned using HashiCorp Terraform and Ansible. Database backups are cross-region replicated to a Disaster Recovery region automatically. This allows to A simple architechture diagram is included for reference.	
Anglia Ruskin University		Student Placements Software as a Service	Please indicate if your system can auto-scale	The proposed solution allows automatic horizontal scaling for the application backend tier and manual horizontal scaling for the database tier. The application frontend tier The application backend tier auto-scaling is performed using Amazon EC2 Auto Scaling service. The number of EC2 instances in Auto Scaling groups is adjusted automatically The number of AWS RDS PostgreSQL read-only replicas can be increased and decreased manually as a response to database load monitoring alerts. Additional costs are dynamic and defined by a number of extra instances that need to be put into operation during peak periods. Texuna's solution will operate within an ex	
Anglia Ruskin University		Student Placements Software as a Service	Please confirm the technical security measur	Our architecture exceeds that of the UK Government 'OFFICIAL' classification guidelines produced independently by: * National Cyber Security Centre (NCSC) Cloud Security Principles. * Center for Internet Security (CIS) Critical Security Controls. Texuna is an AWS certified development partner and our recommended cloud hosting solution is with AWS. Texuna deployments include: * Standard, external-facing Virtual Private Cloud (VPC) Multi-Availability Zone architecture in London Region. * Separate Virtual Network subnets for public application tiers (bastion/management host). * Separate Virtual Network subnet for private (back-end) tiers databases. * Standard VPC security groups for AWS EC2 instances. To eliminate human error, the entire network infrastructure is defined in software providing: * SSL/TLS support when servers are setup. * Transport layer protocols support configured through server installation script. * SSL/TLS and other protocol support is specifically and separately enabled for each application. * Full Transport Layer Security v1.2 and above (TLS) incorporating increased key strength. * BLOB/Object Storage Services for application data and backups encrypted at rest with the AES-256 encryption standard. * Amazon RDS PostgreSQL Database encrypted at rest with the AES-256 encryption standard. * Identity and Access Management, with transparent data encryption controls applied to confidential data. Access to encrypted data is closely controlled through: ** Encryption keys for ciphering are stored separately from application databases to mitigate risks.	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how you provide customer v	Amazon AWS offers various monitoring metrics through Amazon CloudWatch service. All metrics can have thresholds and linked actions including automated actions to fix o Texuna can either provide ARU with direct access to the dashboard graphs and alerts or else will provide timely summary information on issues/details (e.g. provide a mont	
Anglia Ruskin University		Student Placements Software as a Service	Please describe how you have designed your	Texuna's PALM solution is a very user-friendly system with an initutive user interface. Texuna worked with an Irish university and User Experience exports to build the initial Complex workflows will be prototyped to ensure usability and content language can be tested with end users with FAQ's to facilitate help and support. Texuna combines wo	

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Anglia Ruskin University		Student Placements Software as a Service	ARU is an international organisation with stu	The system is designed to function and be accessible 24x7, with just minimal delays for a rare maintenance/upgrade of the data storage. The deployment of new releases a If the placements are located in different time zones, the events scheduling is performed and displayed in local time. Other time attributes can be displayed in local time or Our screens are coded using responsive web design principles to ensure that they are accessible and usable on any device type including mobile devices and laptops. In add	
Anglia Ruskin University		Student Placements Software as a Service	If your solution involves a client application t This is for information only.	No client application is required, all access is made via modern web browsers (see 4.2.33 for more).	
Anglia Ruskin University		Student Placements Software as a Service	Our standard desktop client delivery mechar This is for information only.	No client application is required, all access is made via modern web browsers (see 4.2.33 for more).	
Anglia Ruskin University		Student Placements Software as a Service	Please describe your schedule for making pla	Planned updates to the system will fall into 1 of 3 categories, as follows: 1) Maintenance including system patches, OS updates/etc 2) Scheduled release of developed new features 3) Bug fixes Scheduled releases will be carried out as per an agreed schedule with ARU, and can be as frequent or infrequent as ARU deems necessary. Where bugs are discovered, if the In all cases, the releases will need to go to each environment (Dev, UAT and Production) in turn. After a deployment to Dev, Texuna will verify the release and ensure all is o It is not possible to advise on the average frequency of releases, this will be guided by ARU's needs. Releases will be deployed using blue-green approach to ensure zero dov	
Anglia Ruskin University		Student Placements Software as a Service	Please describe what role would ARU be req	All new releases that involve new features, bug fixes or any sorts of changes to system behaviour would need ARU staff to review and test on the UAT environment prior to For upgrades to system including patches and upgrades, ARU staff will not need to be involved, and simple confirmation of the timing of these will be sufficient.	
Anglia Ruskin University		Student Placements Software as a Service	Please describe your disaster recovery proce	Disaster Recovery The entire infrastructure is replicated in the backup region using HashiCorp Terraform templates and Ansible scripts in case if source AWS region is completely unavailable. I Recovery Point Objective A cross-region replicated Amazon Postgresql RDS read-only replica in disaster recovery region can be configured at an additional cost to aim zero RPO. Cross-region replicate Recovery Time Objective The entire infrastructure creation is automated using HashiCorp Terraform templates and Ansible scripts and typically takes tens of minutes. The database restoration depe	
Anglia Ruskin University		Student Placements Software as a Service	User access to online systems must be appro	Amazon CloudFront placed before Amazon S3 and Amazon API Gateway is configured to allow HTTPS connections only providing redirects to HTTPS scheme for non-encrypt	
Anglia Ruskin University		Student Placements Software as a Service	ARU prefer to use Microsoft Active Directory	Usage of an external and already existing customer's Microsoft ADFS is welcome as it provides us with already functioning user management system functionality. There are 1) All placement system's users are managed and authenticated by customer's ADFS - for both desktop and mobile clients. This is the preferable and simplest option. ADFS h 2) Students and admins are managed and authenticated by ADFS but Placement provider users aren't. In this case our solution would provide user management functionali	
Anglia Ruskin University		Student Placements Software as a Service	Please describe your provision of environme	We use HashiCorp Terraform and Ansible to automate the infrastructure and platform configuration as software to give cloud deployment portability. Infrastructure provisio Production, Staging, Test and Development environments are completely separated and can be even configured on separate AWS accounts for better security. Application d	
Anglia Ruskin University		Student Placements Software as a Service	Please describe the technical and system ma •communication channels (e.g. telephone, o •your opening hours for the various commu •the request logging mechanism and averag • response time for different levels of suppo •Escalation policy	Texuna will provide ARU with a dedicated telephone number and email address for staff to raise queries with Texuna directly. All queries will be fed into our custom-built tic An exact priority definition and agreed response times would need to be agreed, but a suggested set of levels would be: P1: Very urgent issues. System completely unavailable. Initial response within 15 minutes, resolution within 1 hour. P2: Urgent issues. System bugs, behaviour not as expected, system partially unavailable. Initial response within 1 hour, resolution within 4 hours. P3: Issues found, but not urgent. Initial response with 1 day, resolution as per agreed schedule with ARU. P4: Requests for information. Initial response within 1 week, resolution (if needed) as per agreed schedule with ARU. Texuna can implement a series of reports on a scheduled basis to provide ARU with any information they see fit. Texuna's interna escalation route is as follows: BA - PM - Contract Manager - Managing Director	
Anglia Ruskin University		Student Placements Software as a Service	Please advise what data your system will ne	Our placement system will need to integrate at least with ARU's SITS system in order to receive all student-related information required by our use case. Currently we do no 1) We can develop a data client (preferably using REST) for an existing resource/endpoint in Tribal SITS. The client can be created according to spec of the existing SITS servic 2) We can develop a data service (preferably using REST) for a protocol/format existing in Tribal SITS. The service will follow requirements of SITS integration. Texuna has extensive experience of integrating applications with external sources, and can work with importing data via REST APIs, CSVs, etc as well as implementing end po	

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Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system will help ARU	Having worked in the public sector for over 15+ years Texuna have a deep understanding and practical experience of the requirement for accessible systems. We understand Texuna's minimum public sector benchmark is WCAG 2.0 AA level and we have consistently delivered and tested to this standard for all clients over many years. Today we ha	
Anglia Ruskin University		Student Placements Software as a Service	Branding and Customisation Please give examples of how the out-of-the	All aspects of the user interface and page-flows can be customised. Texuna are fully able to support brand identity, future changes and differing customised displays for part Texuna solution web-portals are developed using HTML5 technology, support responsive design templates and cascading style sheets. Solutions use the Wicket or Bootstrap The initial customised solution delivered by Texuna for go-live can incorporate ARU branding and 'look and feel'. This is a normal part of our implementation services and is Web-pages, downloadable help guides and other text are expected to alter and adjust with time, and this must be facilitated. Texuna solutions solve this problem with a stra Any CMS textual information contained within the site can be updated with ease and efficiency, as no prior technical knowledge is required. The CMS will also allow for doc It should also be noted that the Texuna solution supports workflow and customisation based on business rules that utilise the data stored or sourced. Display logic, workflo	
Anglia Ruskin University		Student Placements Software as a Service	Please describe your exit plan and the faciliti	Texuna systems allow for a straightforward exit at the end of a contract period. Texuna will, as part of a formal exit plan, work with ARU and/or a replacement vendor to off Texuna's backup policy is to retain a combination of daily, weekly and monthly backups. The exact frequency will be agreed with ARU, as an example, it could be that daily b A formal exit plan will form part of the project kick-off phase, Texuna's approach is to create the exit plan from project initiation, the plan is a live document which is update	
Anglia Ruskin University		Student Placements Software as a Service	Please advise how your system would enable ARU to remain compliant with respect to fulfilling the date subject's GDPR rights?	Texuna aligns information security to our corporate strategy giving it a top priority. Texuna system design defaults to "nothing-accessible and everything-auditable". This sim *avoid highly bespoke permissions on low-level granularity (simplicity facilitates better management); *encrypt or hash sensitive data where privacy is required; *separate the management of user mapping to groups from the management of access permissions with groups; *integrate to existing enterprise IAM if available (e.g. Active Directory); *secure private data through restricted database views for Business Intelligence tools. Permissions are flexible and apply at multiple levels. For example, student personal data can be restricted only to user groups with a 'need-to-know'. Restrictions can be ap Texuna has achieved Cyber Essentials with GDPR accreditation, and hold an ISO 27001 certificate from BSI. Copies of both can be provided on request.	
Anglia Ruskin University		Student Placements Software as a Service	Please confirm that processing of ARU data b	Texuna will ensure the solution is physically hosted exclusively within the UK and that data is never transmitted or transferred outside the EEA even in encrypted form. Texu Texuna developers will be completed segregated from the data and will have no access to the UAT or Production environments in any manner. Texuna's DevOps team will ha	
Anglia Ruskin University		Student Placements Software as a Service	Please describe the 'Organisational Measure To include but not be limited to: Policy and Procedure Personal Data Breach Management Employee Training and Qualifications Employee checks e) Risk Management.	Texuna applies technical, physical and administrative security measures through preventive controls that are covered by GDPR legislation, such as Encryption, Password Mai	
Anglia Ruskin University		Student Placements Software as a Service	Describe if your system has a function for de Describe how a record may be placed 'on-ho Note: our retention policy states that we kee	Texuna will work closely with ARU to ensure that a retention policy that meets ARU's needs is implemented. The elements for a retention policy are all fully customisable, a	
Anglia Ruskin University		Student Placements Software as a Service	Please provide details of any relevant accred	Texuna are certified to ISO-27001 company-wide by our external auditors BSI (since 2009) and hold Cyber Essentials with IASME. Services are commonly submitted for Gove	

	Sector	Solution	Question	Template Response	Picture number
Intro	Texuna is committed to offering our clients the most cost effective solutions when it comes to their data handling requirements. We specialise in data warehouse, data management, collection and reporting solutions including identity and access management. We have a strong track record with a mix of major clients in the UK (primarily those in higher education) where we have gained a reputation for our strong delivery capability. We were incorporated in 2000 and have served the sector since.				
Anglia Ruskin University		Student Placements Software as a Service	Please describe the ability of your system to	Texuna implement a multilevel audit trail by default across all systems. The audit trail is configured to be as light touch or as extensive as required. Audit and permissions ge *User access control - so that permissions are granted to individual users so that the audit record shows the individual. *Accountability for all record updates and changes including additions and deletions, with online viewable/searchable audit history logs. *All data operations can be independently audited. *Audit logs are themselves subject to access control management. *Logs from all systems streamed to independently secured, tamper resistant storage for monitoring and investigations. The above ensure that Texuna solutions automatically provide a complete audit trail that records: *Who accessed the data; *When the data was accessed; *What data was accessed; *What changes were made. The audit trail tracks access to data and this includes report generation so that it is possible to identify and analyse the reports generated out of the system as well as screer Audit, history and versioning features will ensure all users actions are tracked so that there is a complete history of events and transactions undertaken with date and time s	
Anglia Ruskin University		Student Placements Software as a Service	The University takes responsibility for sustair	Texuna is certified under the ISO14001 standard by BSI across all office locations. Texuna acknowledges its responsibility for the environment and the relevance to customer Our ISO14001 certificate and Environmental Policy are available on request.	
Anglia Ruskin University		Student Placements Software as a Service	The University is committed to working with Previous examples include, but are not limite -Insight days and company tours -Mentoring -Short term placements -Industry yearlong placements -Graduate jobs -Temporary or contract work Please include details of who to contact.	Graduate jobs are often offered in Texuna, primarily in Business Analysis and Developer roles. For more information please contact: Raquel Borges - HR and Finance administrator E: hr@texunatech.com T: 44 (0) 203 393 13 21	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Crown Commercial Servises	MISO	Experience defining and structuring a Minimum Viable Product (MVP)	Texuna have 17 years experience in estimating and building complex projects and programmes of work to deliver fixed-price workstreams to agreed delivery schedules. After Discovery, MVP management through agile development employs effort and complexity estimations using the t-shirt sizing approach. Combined with a User Story Points system, project workloads are managed by product owners and product champions for just-in-time delivery with priority-driven backlogs. We have also worked in multi-vendor teams and multi-stack technologies and are comfortable judging the added complexity this entails so that it is accounted for in delivering a broad programme of change management over extended periods.	99	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Proven experience working on agile projects as part of a multidisciplinary team, as outlined in the Government Service Design Manual and Digital Service Standard.	Having worked in central government public sector for over 12 years Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. For example, early versions of the task list pattern were used in by NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life Long Learning UK. All Texuna user facing deployments are at least WC3 AA level accessible and have been independently tested and verified.	96	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Expertise in iteratively prototyping, designing and building services which meet both user needs and the GOV.UK guidelines for content design, service design and accessibility.	Texuna use open-source components including the GDS libaries to build solutions that meet content design and accessibility criteria. Our approach delivers regular prototyping and continuous integration and deployment of code to shared repositories to ensure real customers and end users can give immediate feedback on the UI/UX and customer journey. Click analysis and google analytics of usage patterns and behavour collect evidence to inform customer journey decisions and highlight improvement areas once beta releases are in production. Texuna have worked with GDS team in an interative style to join front end prototypes with backend systems via pre-specified API definitions.	99	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Ability to prototype and test with users and stakeholders	Multiple stakeholders are engaged with 'show me don't tell me' artefacts to capture and measure feedback on wireframes. We use Indeemo.com mobile-based qualitiative analysis videos to monitor user behaviour when using alpha apps in real-life with a bigger audience. We engage users to understand their methods and motivations, and test our assumptions so feedback can be evidenced. Texuna have agile prototyping experience with startup companies in the B2C space on video, mobile, and web technologies. Texuna has worked with tools such as Balsamiq, GetArbor, InvisionApp, Pressie, to construct quick wireframes and elicit feedback across stakeholders, providing evidence to inform UI/UX.	100	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Ability to turn research data into clear findings to inform what you build	Our agile methods are adapted pragmatically to ensure that we include extensive Discovery work and identify user requirements and backlog up-front. This research phase leads to defined User Story development and then early prototyping so that further feedback and improvements/adaptions can be identified as early as possible. This process tests the project assumptions and User Stories and provides the flexibility to change direction as ideas develop. Texuna believe that projects should incorporate changes as ideas develop provided that there is a fully managed development backlog and sign-off on priorities approved for development so that the MVP is managed effectively.	99	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Demonstrable experience of designing content to meet user needs and making complex language and processes easy to understand in line with style and standards.	Texuna solutions are designed for use by large, diverse user communities. Intuitive design is paramount to minimise help and training needs while ensuring the requirements are met. Our skills are in data management, ensuring that the data is complete and that it delivers a coherent story to users in an accessible and flexible way. Simplicity and straightforwardness is key. GDS design standards and style ensure that we conform with the Government family of user-facing systems. Complex workflows are prototyped to ensure usability and language is tested with end users with FAQ's to facilitate help and support.	96	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Expertise architecting and developing scalable services using public cloud technologies, service-oriented architecture, microservices, security and integration.	Our service-oriented architectures are scalable as evidenced through clients who have stayed with us; notably the NCTL ITTDMS contract held for 14 years which has grown from a single data collection to over 10 collections per year with multiple portals. We are AWS partners and have experience hosting on either AWS or Azure. Our project EduKit for schools uses microservices to upload data nightly. Our development standards ensure code is protected from malware attack and vulnerabilities. We test extensively at all development stages using automated scripting for integration testing every release package and penetration testing prior to live running.	99	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Display knowledge about system security risks and how to pragmatically mitigate them	Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed many audits and RMADs assessments for central government clients. Our developers are aware and follow OWASP best practices and we penetration test all our solutions. We manage security risks at project level and organisation level with regular reviews, mitigation strategies and owners. Security incidents are logged with root cause analysis so that we can manage improvements to minimise re-occurance. Urgent issues impacting Production enviroments are dealt with immediately to minimise downtime and clients kept informed of risks and issues on their own environments.	100	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Experience of transferring knowledge to internal staff	Texuna often work with public sector first-timers to migrate them to agile-driven, user-focused, priority-driven project management, requirements prototyping and sprinting code deployment. We work collaboratively, remotely or in-loco and on an open book basis to ensure full visibility and opportunity to participate in code development, testing, deployment and operation. Our specialised handover workshops with small teams assure knowledge and understanding is transferred and verified. We provide sufficient video and wiki documentation to ensure a level of self-sufficiency is left with client staff. Open standards and OSS help ensure sustainability long term, and Texuna can also provide support services with SLA.	100	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Experience with ASP.NET in C# with SQL Server to support the existing MISO system	Texuna have staff with a range of specialist skills including developers with asp.net in C#. The DfE GIAS project is hosted on Azure with a .net based front-end. Our philosophy is ensure our work is vendor agnostic and we ensure we re-use existing licences where practical so that our clients are not always forced to learn new technical skills. We have delivered complex datamanagement solutions and SQL server such as the EduBase solution (precursor to GIAS) for the Department for Education. We are confident that we have the technical skills and ability to support the exising MISO system.	98	Not shortlisted	Not requested	
Crown Commercial Servises	MISO	Experience of providing coaching in agile methodologies	Texuna work in a transparent partnership with our clients. We worked with Jisc to introduce an Enterprise Data Warehouse and through that project we trained Jisc staff to use our methodologies and to work in an agile manner. Training involved working alongside the team at Jisc on a daily basis with joint responsibility for delivery of some releases. This was active coaching and mentoring for the Jisc staff at each stage of the development cycle from requirements to testing. We also rigorously code review and do sprint retrospectives to facilitate knowledge sharing.	92	Not shortlisted	Not requested	
DfE	Intervention in an Academy	Recent and demonstrable experience in agile service delivery, including having been successfully assessed, in a previous project, against the GDS Alpha Service Standard	Texuna's agile way adopts daily standups, bi-weekly sprints with show/tell and retrospectives, as well as identifying formal roles (project sponsor, project champion, product owner, scrum master) to structure data integration and warehouse projects. We adopt online collaborative tools and techniques to improve transparency with stakeholders, adhering to strict rules required under BSI ISO9001, ISO20000, ISO27001. We deliver using agile methods while respecting contractual commitments and Prince2 gateways and usually share outcomes risk on agile projects. Our pragmatic and committed partnership approach is demonstrated through our DfE projects. Our GIAS/EduBase project passed GDS Service Assessment in 2017.	96	Not shortlisted	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Intervention in an Academy	Recent and demonstrable experience of applying the principles of user centred design to the development of digital solutions	Our design-thinking approach is a user-centred multi-stage problem-solving process that requires designers to empathise with and foresee how different user-groups respond to a design. Designers test the validity of key design decisions and assumptions through real world engagement and prototyping with actual users. E.g. For Ofsted we prototyped screens that were user-tested and changed prior to formal UAT. We interact with sample user groups to determine specific needs and issues. We match published GDS standards and best practices with design thinking and customer journey mapping. We follow open standards and are fully compatible with cascaded style sheets.	97	Not shortlisted	Not requested	
DfE	Intervention in an Academy	Can offer the right level of expertise, and resource the project within the specified timescales to allow fast and high quality progress	Texuna adhere to strong process management principles to make projects predictable. Project resources are drawn from a multi-disciplinary pool of long term employees. Our training and documentation ensures that we have contingency and are able to flex and change each project team as demands dictate while maintaining quality delivery. We are certified to ISO standards for quality, service and security by our external auditors BSI. Our DfE projects include GIAS since 2008 and SecureAccess since 2012. We can scale up across several offices and sometimes integrate freelancers into our team and processes when additional resources are required.	97	Not shortlisted	Not requested	
DfE	Intervention in an Academy	Can offer technical expertise to match business requirements with systems available on the market	Texuna experts apply their strong data and open source credentials to solve business problems. Our 15+ years in Education gives us experience of sector products and services. Our detailed business, project, and process methods help us drive strong outcomes for our clients. For each major project we investigate suitable COTS, cloud services and open source libraries, not afraid to build and borrow and integrate software and microservices to create high performance, scalable and functional services. We closely monitor GDS standards and best practices to deliver creative, innovative, high quality and value-for-money solutions that users really appreciate.	96	Not shortlisted	Not requested	
DfE	Intervention in an Academy	Can communicate effectively to engage a wide set of users across businesses, capture and make sense of user journeys and effectively communicate the results widely, including to senior level audiences	Our sector work gives us insight to Departmental goals and objectives. Our staff are excellent communicators because of strong stakeholder collaboration and focus on empathy-building. Our partnership approach engages with all levels of the business through people-focused workshops, user research, surveys and written communications. Our analysts test assumptions with low fidelity people-based journey maps, create user stories, prioritising them into backlogs with stakeholders based on Reach-Imact-Confidence-Effort matrix. We use a "show-not-tell philosophy", and constantly engage real users with sprint reviews and developer retrospectives. We use visual communication to ensure results are well understood by senior leaders and everyday users.	99	Not shortlisted	Not requested	
DfE	Intervention in an Academy	Demonstrable evidence of leading an agile team as well as coaching, mentoring and upskilling people in agile techniques and roles to build capability within existing teams	Texuna worked collaboratively onsite with Jisc over 2 years to deliver a greenfield Enterprise Data Warehouse. All levels and roles were engaged including: business knowhow, stakeholder engagement, technical coding and efficient handover of source-code and cloud devops. Texuna's transparent partnership approach focuses on high levels of quality technical documentation to support handover and on-the-job training. Project signoff points ensure staff are engaged in design and implementation. Texuna acts as an extension of the client team helping to build internal competence and capability. We work with clients preferred project and collaboration tools to minimise friction and maximise knowledge transfer.	98	Not shortlisted	Not requested	
DfE	Intervention in an Academy	Demonstrable experience of managing the entire project lifecycle, including the planning, design, development and delivery of digital projects in line with Government Digital Service Standards	Texuna have 12+ years of practical experience in government, working with GDS guidelines from the earliest days. E.g. Texuna used early versions of the task list pattern in the NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life-Long Learning UK many years ago. All Texuna user-facing deployments are at least WC3 AA level accessible since 2005 and have been independently tested and verified. We reuse GaaP UI where possible to reduce the cost of service delivery. Our extensive work on GIAS (DfE) demonstrates recent experience collaborating with GDS design patterns and accessibility standards.	98	Not shortlisted	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Full Stack Developer- Experience to include, not limited to: working in government using Agile/Scrum methodology to develop digital services to GDS standards, working to Gov APIs	Texuna employ many experienced Full Stack Developers working in structured and standards-based environments. We use Agile Development and Scrum methodology. We developed the back-end services for GIAS and exose the front end API to conform with GDS standards, following the GDS Service Manual. We use tools like Pivotal Tracker, Slack and Visual Studio to manage Sprint planning, backlog grooming and team communications. We use daily standups / scrums, bi-weekly reviews ('show me, don't tell me') and lessons-learned retrospectives to ensure scope is managed and users are continually appraised and can provide feedback.	93	Were invited in 2nd round	Not requested	1) **Essential Skills – Lots of strength on the roles associated with data collection and storage, however the panel did not feel there was the same level of strength from the proposal and interview on the business analysis and user research roles, or how to design presentation of data for a wide audience such as that of performance tables.**
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - C# and .NET Framework/.NET Core, Hosting with Microsoft Azure, Redis cache, Azure search, Cosmos DB, App Services/web jobs, Azure Service Bus, Continuous Delivery (ARM)	Our team includes many full stack devs with skills in all cited technologies, each with 10+ years experience in Texuna. We work with the DfE to host GIAS on Microsoft Azure, using continuous integration and continuous deployment to cloud to automatically manage operations with other suppliers. We use cloud tools to implementation robust engineering designs for enterprise-level solutions, giving growth flexibility and scale. Texuna has established expertise in .Net Framework including experienced C# developers that work across multiple technology stacks, including relational and NoSQL databases, as well as Redis caching technology on Azure.	93	Were invited in 2nd round	Not requested	2) **Nice to have – The key area here was in demonstrating resource contingency and flexibility, whilst on paper the roles and back-up was presented within the proposal and commitments were made to meet location needs, when questioned some of the resource offered for contingency did not meet the requirements for this work + it was not clear how the supplier would meet the location needs for the wider team, this did not appear to have been thought through past the idea phase which would present a significant delivery risk.**
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Visual Studio Team Services, Configured SSO SAML/claims-based authentication, JQuery/KnockoutJS/React/Jasmine/GDS FE toolkit/TDD/Service Oriented Architectures/RESTful API design/HTML/JavaScript/CSS/SASS, NodeJS/grunt/bower config, WCAG 2.0	Texuna developed and deliver the DfE SA solution for access and authentication that uses SSO SAML standards and already integrates with ASP, GIAS, and SPT services. We engineer with both REST and SOAP API webservices as interfaces. Our engineering methods comply with Digital by Default and Digital Service Standards. We are open source integrators who use GDS toolkits and libraries in our web-based service oriented architectures and are adept in utilising proven technologies and libraries to efficiently deliver end-to-end Web solutions. We are experienced in, support and use HTML, CSS, WCAG 2.0 standards, SASS mixins and tools/languages cited.	98	Were invited in 2nd round	Not requested	3) **Methodology – The panel would have liked the supplier to explain more about how they would have partnered with the DfE to deliver to digital services and meet the user needs, rather than concentrating on costing the existing model and outlining generic Agile/DevOps processes. A stronger score would have been possible if the supplier had demonstrated their thinking on day one of a new commercial partnership and how they would have looked to stabilise the services and then work with the department to mature and evolve the partnership to meet the service goals.**
DfE	Data Modernisation Division (DMD), Data Group	UX Designer - Experience to include, not limited to: delivering digital, user-centred experience within an agile environment for a government department using GDS standards, keeping updated with toolkit on Hackpad/Page	Texuna create user-centred design by matching published GDS standards and best practices with design thinking and customer journey mapping. We work with startups including Checkmate and Indeemo to help them create mobile friendly apps that meet core needs of a user in the simplest possible way, while guaranteeing an overall experience that is compelling. Design is always driven by testing for user feedback regularly and continuously based on usage rather than the designer assumptions. We use many alternative tools depending on client preferences to make design thinking discovery processes efficient. We keep updated following GDS Service Manual and github changelog.	100	Were invited in 2nd round	Not requested	4) **GDS Standards – Again the awareness was there but little on the approach the supplier would use to maintain best practice at a level that is proportionate to the service**
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Experience presenting complex statistical information (preferably including school performance data or similar to users using GDS Toolkit and limitations)	Texuna is an experienced data handler with the analysis and technical skills to understand and present government data in comprehensible and accessible format to users with restricted technologies. Our NCTL ITTDMS has collected workforce data for teacher training in England over 12+ years. We publish annual statutory reports publicly. We engineered a comprehensive analysis tool to enable Provider users to produce benchmark reports and detailed analysis and profiling of trainees against the sector. The data includes success rates and details on qualified teacher status with subsequent employment success gathered from the DHLE survey. We also publish OfS's National Student Survey.	100	Were invited in 2nd round	Not requested	5) **Coaching / Developing the teams skills and mentoring – Whilst the panel understood comments around previous teams not taking coaching seriously this is very much a priority for our teams so again the score was limited due to the supplier not having thought through the model or approach they would take for this.**

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Data Modernisation Division (DMD), Data Group	Content Designer - Experience to include, not limited to: delivering digital, user-centred experience using Agile/Scrum methodology to design content to GDS standards and Design Principles, and Digital Service Standard	Texuna understand the GDS framework, design principles and Digital Service Standard and work with GDS Standards and tools to engineer our solutions. We designed the content to the GDS style for our Ofsted project which is currently being deployed for the foster children data collection. We work an agile methodology with daily scrums. We partner with our clients and real world users to ensure we empathise with then and understand the requirements from 'their shoes', creating a design that is centred on their needs and journey objectives. We test paper designs, working prototypes and beta deliveries with users in retrospectives.	100	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Understanding of Department goals and objectives, experience writing succinct,creative, and compelling content for the web, strong teamwork and communications skills, ability to negotiate with stakeholders	We worked with DfE since 2008 on GIAS (formerly EduBase2), exposing us to departmental teams and policy. Our work within the Education sector gives us insight and understanding of the Departments goals and objectives. Our staff are excellent communicators and we thrive because of strong client collaboration. Our web marketing experts and layered review process with clients help create compelling, correct content and we have garnered communications and stakeholder management experience from years working with universities for NCTL, suppliers and DfE with SecureAccess and vendors/FECs for LLUK. We have an excellent reputation for successful delivery and service in government.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	User Researcher - Experience to include, not limited to: working in government using agile methodology in alpha and beta projects establishing user needs, displaying data, and translating to user stories	Texuna already work with GIAS and DfE in an agile approach across gateway reviews. Our GDS framework knowhow guides us to create user stories, define features and model workflows during Discovery/Alpha/Beta phases. Our startups/consumer app investments / tech partnerships bring 100% user-centered and rapidly-prototyped agile deployments. E.g. Indeemo.com, a qualitative research video startup used to research product design and to inform user research and experience/usability. We combine this knowhow with low fidelity and rapid prototyping to make regular demonstrations to real users - we empathise with them and incorporate their feedback from the very earliest sprints in a project.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Experience in Morae video recording, audio recording, Cloudera technology stack of: HUE, Impala SQL, Hive SQL, Oozie Workflows, Jupyter Notebooks, GDS awareness	Texuna are partners of Pentaho, owned by Hitachi Vantara with whom we have delivered several big data projects. We recently deployed a 100TB+ scale data vault warehouse using HUE, Impala/Hive Cloudera services with Hitachi. We gained world class enterprise data warehouse architecture and analytics experience, with greenfield projects like Jisc/Janet (Kimball star schemas) and 15+ years of government data management-as-a-service. We work to GDS standards for DfE and NCTL projects, and also for non-public sector projects. We are deploying advanced analytics on unstructured text across tens of TB of communications data for the Irish government eDiscovery/eDisclosure solution.	97	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Delivery Manager - Experience to include, not limited to: delivering change in government department, managing expectations, building/prioritising backlog, Agile delivery (Scrum/Kanban), managing scrum team, attending government standard change management boards	Texuna deliver new capabilities using both Prince2 and Agile with daily scrums and backlog grooming with Product Managers and prioritisation reviews Product Owners and Project Sponsors. Change is natural when embracing new ideas and opportunities, and Texuna participate on several formal change management boards (e.g. SecureAccess CAB). Our partner collaboration and transparent approach with documented board reviews helps manage expectations and keep all appraised of progress, ideas and decisions. We deliver public sector data collection, management, warehousing, analytics and publications in an agile way, using OSS and reusing GaaP UI and other libraries to reduce the cost of service delivery.	100	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Conducting show and tell demos, coaching and mentoring of cross-functional scrum teams, Microsoft Visual Studio Online, Azure, presenting changes at CAB, adhering to GDS standards	Our agile sprint deployments follow agile process so that there are formal sprint ceremonies including "show and tell" demos and formal sprint planning with backlog grooming. Our team holds daily stand-ups and uses collaboration tools -e.g Visual Studio Online on GIAS - to formalise specifications and communications. In Jisc we collaborated onsite alongside Jisc staff in a multifunctional team, transferring skills and engaging in mentoring and coaching daily. For SecureAccess we formalise change management and are present at Project Board and Change Board level. In our public sector projects we rigorously adhere to GDS principles.	95	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	QA Tester - Experience to include, not limited to: working in government using GDS standards, keeping updated with Gov APIS,services, libraries, toolkits. Advanced QA skills for front and back-end	Our QA team understand and use the GDS framework tools for front and back end testing. Our GIAS test strategy includes: Unit test to ensure code is developed correctly, performed by the developer. API /service tests to ensure communication between components using Canoo WebTest. Acceptance Testing to ensure customer's expectations are met where we use Selenium/ Ruby/Cucumber System/Regression/UAT ensures the whole system works when integrated and uses Selenium/Ruby/Cucumber and Manual tests. Performance testing confirms that the system meets required performance standards with expected peak loads. Penetration testing is conducted to verify that development standards are complied with and OWASP vulnerabilities are addressed.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Government APIs/DevOPs/Test Automation/Infrastructure Automation/IaaS/PaaS/MS Azure/Unix Puppett/Microsoft Stack/.Net/C#/ASP.NeT/SQL Server, Ruby on rails/cucumber, HTML5/CSS 3/Javascript/Jquery/CMS/API design, Git.	As an open source solutions provider Texuna integrate various tools and libraries including GDS frameworks. Technically we are experienced in all the tools cited with sufficient experience to work across past and future technologies to deliver value for money, platform independence and development execution. We use GIT for source control and configuration management. We engineer solutions for automation and ease of management. Our solutions are hospitable to growth and change. Our NCTL ITTDMS solution which has grown successfully from a single data collection solution to a large data management solution supporting multiple collections and datasets over almost 15 years.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Business Analyst - Experience to include, not limited to: working in government using agile and non-agile methodology (Scrum, Kanban, Lean, User Journeys, Epics, User Stories), working with multiple stakeholders	Texuna's interactive Business Analysts enable build of effective solutions that meet business and user needs. Our staff engage fully with many stakeholders at all organisation levels with visual tools. We have 15+ years of analysis services in the Education sector where we have reengineered data management solutions and responded to policy and provision changes and expansions. We use Agile methods but tolerate alternatives. Tools and techniques include user journey and user story mapping, kanban and prototyping with test script development. Lean development and delivery is organised into Epics within timeboxes with cyclic sprints, daily scrum and ongoing backlog grooming.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Domain knowledge in data processes, infrastructure (MS Azure and Secure Access) and people, knowledge of school performance and data processes, experience with GDS and knowledge of Government APIs	Texuna use AWS and Azure cloud hosting extensively. Our analysts have deep knowledge of data processes and infrastructure. We develop and deliver the DfE SA project, managing stakeholders to provide single sign-on access and authentication services to 11 major systems. Our work in the public sector gives us a deep understanding of the needs and pressures for delivery as well as competence in GDS and government API integration. We have worked with many teams and individuals in the Department to document and analyse their requirements so that our solutions deliver the capabilities required with accurate and complete data.	98	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Front-end Developer - Experience to include, not limited to: working in government using GDS standards, keeping updated with Gov APIS, Javascript, knowledge of Razor (ASP.NET), MS Azure hosting	Texuna use GDS libraries and standards to implement the Ofsted Fostering Data Collection system, and eDiscovery solution for the Irish government. Our front end developers are skilled in web application engineering with open source libraries and tools, Javascript and Asp.NET Razor. We demonstrated on GIAS how to develop API messaging between suppliers via YAML and Swagger for front-to-back integration services. Our web applications are hosted on either Azure or AWS and are typically designed to be cloud portable and independent. Front-end developers work closely with user researchers and business analysts to deliver the usable, accessible interfaces to stakeholders.	98	Were invited in 2nd round	Not requested	

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DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Redis cache/Azure search/Cosmos DB/App Services/web jobs/Azure Service Bus/Continuous Delivery (ARM)/Visual Studio Team Services/JQuery/KnockoutJS/React/Jasmine/GDS FE toolkit/RESTful API design, HTML/JavaScript/CSS/SASS/NodeJS/grunt /bower config/WCAG 2.0	Texuna front-end team produce GDS compliant solutions using AngularJS, JQuery, SASS mixins and other javascrip libraries. We already use the GDS libraries and APIs in our work with Ofsted to meet GOV.UK standards. We host on Azure and AWS cloud and use continuous development and continuous deployment to deliver services that adhere to GDS accessibility and usability standards. We have designed and deployed RESTful API services with YAML and Swagger working with OliveJar at DfE. We have also consumed cloud APIs such as Salesforce etc. for datawarehouse integration, as well as more complex API integration such as SAML.	98	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Technical Lead - Experience to include, not limited to: Lead development in architecting government solutions within Agile/Scrum from alpha-beta-live in accordance with GDS standards, keeping updated with Gov APIs	Texuna Technical Architects and Technical Leads all have 10+ years experience in full-lifecycle design and deployment for our major Public Sector clients. Our most experienced technical consultants with a proven track record of on time and on budget delivery using Agile/Scrum methods, they have proven skills in translating business requirements into innovative and creative solutions. Strong communication skills and strategic thinking sets the business vision in context of the technical practicalities. We use GDS standards and the Service Manual, e.g. for the GIAS backend where we designed and built the webservices API to the front end.	96	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Redis cache/Azure search/Cosmos DB/App Services/web jobs/Azure Service Bus/Continuous Delivery/Visual Studio Team Services/Creating high and low level designs on Azure platform/Test Driven Development/Behaviour Driven Development	Texuna use test-driven development with technical and user/behaviour testing as an integral part of the delivery process. Each sprint is verified technically and sanity-checked with actual users. We deployed GIAS on Azure cloud using native tools to ensure continuous integration and deployment. We provided robust automation to minimise maintenance and harden services against unplanned Microsoft DB patching and unexpected Redis cache disconnections. We hardened the SecureAccess cluster to tolerate erratic, unexplained behaviour on Eduserv hosting. We engineer across the full stack with comprehensive design and orchestration so that our solutions perform well and securely across layers of services.	98	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	(Cont.) - Government APIs/DevOPs/Test Automation/Infrastructure Automation/IaaS/PaaS/MS Azure/Unix Puppett/Microsoft Stack/.Net/C#/ASP. NeT/SQL Server, Ruby on rails/cucumber, HTML5/CSS 3/Javascript/Jquery/CMS/API design, Git.	As an open source solutions provider Texuna integrate various tools and libraries including GDS frameworks. Technically we are experienced in all the tools cited with sufficient experience to work across past and future technologies to deliver value for money, platform independence and development execution. We use GIT for source control and configuration management. We engineer solutions for automation and ease of management. Our solutions are hospitable to growth and change. Our NCTL ITTDMS solution which has grown successfully from a single data collection solution to a large data management solution supporting multiple collections and datasets over almost 15 years.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Proven experience of working with Government departments to develop digital services	Texuna have 12+ years of practical experience in government, working with GDS guidelines from the earliest days. E.g. Texuna used early versions of the task list pattern in the NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life-Long Learning UK many years ago. All Texuna user-facing deployments are at least WC3 AA level accessible since 2005 and have been independently tested and verified. We reuse GaaP UI where possible to reduce the cost of service delivery. Our extensive work on GIAS (DfE) demonstrates recent experience collaborating with GDS design patterns and accessibility standards.	98	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Domain knowledge of Government APIs and Services – including Gov Notify, Gov Verify Secure Access, School performance data, GIAS, GDS Registers	Our prior experience of using the GDS framework means that we have the required domain knowledge and expertise to integrate tools, libraries and services. Texuna deliver the GIAS and Secure Access solutions and integrate with the Schools Register in our development of GIAS. Secure Access integrates with GIAS and 7 other central DfE services to enable single sign-on. Our familiarity and use of framework libraries enables us to integrate existing open source into our development and delivery. We have a long history of code integration and firmly believe in reuse to delivery value-for-money and rapid prototyping and delivery to market.	100	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Proven experience and knowledge of displaying statistical information to users by doing user research.	Texuna manages big datasets expertly according to business rules. We publish the National Student Survey results with OfS, providing an analysis tool for end-users to report their own and sector data. We manipulate the data on statistics and volume (e.g. masking rules to secure personally identifiable data) on NSS and also on NCTL statutory reports. Our bespoke tools are well received by the sector and we constantly revisit ideas for improvement with sector user workgroups each year when permitted and budget allows. For Jisc members we calculate usage statistics across massive Eduroam/Govroam datasets, and do BI for university clients.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Experience of providing on the job coaching in agile delivery on the specialist skills within the team.	Texuna worked alongside Jisc Enterprise Data Warehouse project. All levels and roles were engaged including: business knowhow, stakeholder engagement, technical coding and efficient handover of source-code. Texuna's transparent partnership approach focuses on high levels of quality technical documentation to support handover and on-the-job training. Project signoff points ensure staff are engaged in design and implementation. Texuna acts as an extension of the client team. Core documentation is available to all via an online and versioned document repository. Texuna are happy to use our clients project and development tools to ensure that knowledge transfer and access to information is high.	99	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Ability to develop software that complies to Government security guidelines and current OWASP risks; including supplier vetting, and supporting rigorous pentests and security accreditation.	Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed audits and RMADs assessments including third party penetration tests for Secure Access. Our developers follow OWASP best practices and we internally penetration test all our solutions. We manage security risks at both project and organisation level with regular reviews, mitigation strategies and owners. Security incidents are logged with root cause analysis so we can manage improvements to minimise re-occurrence. Urgent issues impacting Production environments are dealt with immediately to minimise downtime and clients kept informed of risks and issues on their own environments.	100	Were invited in 2nd round	Not requested	
DfE	Data Modernisation Division (DMD), Data Group	Contingency and Flexibility – Ability to easily scale resources up or down based on project needs and substitute similar resources without any implication to the project.	Texuna is a mature Company with a 17+ year track record. We resource projects from our multi-disciplinary team and have the flexibility to deploy or re-assign resources as each project needs dictate. We rigorously plan our resource deployment and engage in cross-training staff to both upskill them and to provide contingency for each project and the flexibility that our clients demand. We deliver to the education sector where our clients experience both busy periods and quiet times in the academic year. We have successfully managed cross project demands for services and have a track record of meeting deadlines and commitments.	100	Were invited in 2nd round	Not requested	
DfE	eDisc Matrix Portal	Proficiency and experience in working with and/or providing and /or delivering all of the following	Texuna has over 15 years experience of deploying a range of innovative database management and collection solutions within the wider education sector in the UK, including working with GDS team on Edubase. Our experience developing our eDisclosure offering enables collection, preservation, search and analysis of keyword / phrase and custodian searches from a wide range of data sources and file types. This can be adapted and developed to meet the functionality and outcomes required within a broad sphere of applications, including GDPR, litigation, arbitration, Freedom of Information (FOI) or any other application requiring flexible and comprehensive search/review critieria.	98	Opportunity was withdrawn	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	eDisc Matrix Portal	Microsoft technologies including Azure, Office 365, SharePoint 2013/2016 .	Texuna work with proprietary software stacks, cloud services and open source software, creating integration connectors between different sources and targets. Texuna migrates AWS services to and integrates with the DfE Azure environments (e.g. Edubase and Secure Access; Jisc Enterprise Data Warehouse integration with Sharepoint, OneDrive, Exchange, SQLServer etc. eDisc indexes file systems, mbox/mailboxes/.pst archives, messenging services, phone data, images with OCR, etc. and saves/presents search datasets as sophisticated matrices for each legal disclosure ruling. We track delta changes on legacy and modern systems and implement workflow. We can also use elastic cloud technology to accelerate indexing.	96	Opportunity was withdrawn	Not requested	
DfE	eDisc Matrix Portal	A comprehensive, flexible search facility which can search for specified words and phrases across numerous sources	Texuna has developed an unstructured text object hub already used in multiple UK high court litigations each involving USD100+ million. Texuna's crawler indexes a broad range of object document and data types, delivering a comprehensive search and collaborative document / communications review, using specified keyword/phrase and custodian indexing, technology assisted review and data preservation. Data load / ingestion is supported for MS Exchange, SharePoint, SQL Server and data loads from a broad range of legacy systems through a number of different connectors. Texuna's ETL and data warehouse experience give us an edge in watching data for changes and updating search results.	100	Opportunity was withdrawn	Not requested	
DfE	eDisc Matrix Portal	An outcome of the ability to store the search results securely	Results are secured in a matrix store with tags making it easy to browse search results of matching documents and text objects including workflow and presentation through a metadata index. We can deliver bespoke outcomes to manage search results securely. Original documents can be kept at source or copied, the index is encrypted at rest and the search results can be stored as links to source with newly created metadata, as well as the ability to copy data to preserve it for subsequent analysis/export. Everything is wrapped up in a secure private network with encryption and is penetration tested.	99	Opportunity was withdrawn	Not requested	
DfE	eDisc Matrix Portal	security clearance of Baseline Personal Security Standard (BPSS)	All Texuna employees are cleared to the BPSS standard during the recruitment and hiring process. Identities, nationality, and immigration status are confirmed with documentary evidence of passports, utility bills/drivers licences. Employment history is confirmed by following up on references and we use Disclosure Scotland for the unspent convictions self certification. Texuna's BPSS status is maintained as we work with the DfE on other projects. Texuna is also ISO 27001 certified in this regard.	73	Opportunity was withdrawn	Not requested	
DfE	eDisc Matrix Portal	An outcome that will maintain the confidentiality of data that is not relevant to the overall project	Texuna have prepared multiple production sets for disclosure / discovery activities for litigation in the UK. Confidentiality is preserved throughout by utilising metadata flags to control access to the search index via user permissions. A two-stage reviewer authorisation to release confidential / privileged information is also built in. All copied data is encrypted at rest, and the application is penetration tested after each major release. Texuna can reuse existing DfE permissions to ensure restrictions to data remain in place irrespective of data source, so that only data that is accessible by any given user or group appears within results.	98	Opportunity was withdrawn	Not requested	
DfE	eDisc Matrix Portal	An outcome that is capable of refining the output from legacy systems	Our engineering team have extensive experience of integrating legacy systems and using ETL style techniques to map data from source to targets. We have an extensive range of existing plugin connectors to a range of proprietary inhouse and cloud solutions, including connectors for semi-structured and unstructured data sources. We can use crawlers to index data at source or we can copy and index data in a staging area. Libraries are available to assure that the security and privacy of data is mantained only to authorised users - ie search results are refined for the relevant audience.	96	Opportunity was withdrawn	Not requested	
DfE	eDisc Matrix Portal	Working with EGRESS (a secure file transfer facility)	Texuna already regularly work with various teams in the DfE, NCTL and with third party suppliers such as the GDS teams, Cap Gemini, Zazzi, etc. and already securely transfer data via the EGRESS system for Secure Access, Edubase and NCTL data collection systems.	43	Opportunity was withdrawn	Not requested	
DfE	eDisc Matrix Portal	Evidence of Develop additional business processes if needed to ensure that access remains restricted. The output from the searches will be viewed by a team .	Texuna have deep expertise in performance and penetration testing, as well as securing virtual private networks inhouse or in the cloud with Azure and AWS through software defined infrastructure. Our identity and access management solution runs the bespoke Secure Access system for the DfE. We often integrate with ActiveDirectory and other sources via open standards such as OAuth2.0, SAML2 and OpenLDAP. Integration with legacy systems and existing ActiveDirectory user groups can respect existing permissions and assure these are applied to restrict access through search controls so that only authorised users will see or know of the existance of indexed documents.	100	Opportunity was withdrawn	Not requested	
DfE	NPD-API	Have experience of applying differential privacy	Texuna publish NCTL annual statutory reports concerning teacher training. We mask the data on realtime reports to conserve teacher privacy. We follow government statistical guidance but masking aggregate data has limitations. At Jisc, Texuna developed an information classification and automated obfuscation strategy, reviewed by Pinson Mason (law firm) to protect their data warehouse. However Texuna consider that encryption and hashing algorithms alongside row and column linkage destruction are insufficient for analytical purposes. We are therefore working on noise injection and differential privacy to further preserve statistical relevance of statistical datasets in our work with identity solutions and data protection.	99	Opportunity was withdrawn	Not requested	
DfE	NPD-API	Be able to identify, and arrange research/testing, with users	Texuna and OfS collaborate with Ipsos Mori, the National Union of Students and HE stakeholders on the annual National Student Survey. We arrange online engagement and physical workshops across the sector to gather feedback and test assumptions. We use independent peer reviews with expert facilitators (Prof David Sammon University College Cork) to check data models and data quality. We partner with statistical experts to test our findings and verify the robustness of our work. Our pragmatic, agile and visual approach allows us empathise with users and document their desired outcomes so that the quality of outcomes is assured.	98	Opportunity was withdrawn	Not requested	
DfE	NPD-API	Have experience of designing user centric services	Texuna works with GDS teams under cabinet office guidance. With University College Cork, we have created a visual, interactive workshop-based approach to design thinking focused on different personas and customer journey. We engage in observation as espoused by the GDS through Indeemo (qualitative research app) to truly understand UI/UX in the context of typical usage. We get close to end users to appreciate their intention, interface interaction and build empathy with each user. We know the GDS open source frameworks and patterns in use for front end services and already apply these to our public sector projects to ensure compliance.	100	Opportunity was withdrawn	Not requested	
DfE	NPD-API	Be able to produce and test prototypes with users	Startups lean/quick mentality (Texuna works with several including Checkmate/Ireland and Edukit/UK) helps us radically speed up our own prototyping approach with continuous integration and continuous deployment. Texuna now delivers quick iterations of code based on regular end user feedback from show/tell demos. We deliver production-ready working prototypes at the end of each sprint. Combining the iterative speed of the front end user stories with the disciplined and rigorously engineered backends allows us to deploy working prototypes with high quality assurance. Leveraging GDS published frameworks, patterns and open source libraries allows us to deliver tested code quickly for immediate impact.	99	Opportunity was withdrawn	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	NPD-API	Work in an Agile way - in line with GDS serivce standards	Texuna's agile way adopts daily standups, bi-weekly sprints with show/tell and retrospectives, as well as identifying formal roles (project sponsor, project champion, product owner, scrum master) to structure projects. We adopted a number of different online collaborative tools and techniques to improve transparency with stakeholders and client team members, all the while adhering to the strict rules required under BSI ISO9001, ISO20,000 and ISO27,000. Furthermore we deliver agile methods while also respecting contractual commitments and a Prince2 gateways to make agile projects more predictable. This pragmatic and committed partnership approach is demonstrated daily on our existing DfE projects.	98	Opportunity was withdrawn	Not requested	
DfE	National Pupil Database Data Matching Processing Collation	Expertise and experience in application of Agile approaches to delivering complex systems (using Agile techniques that meet the GDS Service Standards and have passed GDS Service Assessments)	Texuna's agile way adopts daily standups, bi-weekly sprints with show/tell and retrospectives, as well as identifying formal roles (project sponsor, project champion, product owner, scrum master) to structure projects. We adopt online collaborative tools and techniques to improve transparency with stakeholders while adhering to the strict rules required under BSI ISO9001, ISO20,000 and ISO27,001. We deliver agile methods while also respecting contractual commitments and Prince2 gateways to make agile projects more predictable. Our pragmatic and committed partnership approach is demonstrated through our existing DfE projects, e.g., EduBase, where we have passed GDS Service Assessments and follow GDS Service Standards.	99	Were invited in 2nd round	3 points (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Proven experience of working with data matching and processing on this scale	Texuna have years of experience of working with data flows and warehouses across a diverse range educational datasets and sector partners (Jisc/DfE/NCTL/HESA/OfS/UCC). These comprise millions of complex records, often over 250 fields of data, maintained over sequential years. Our project at Jisc takes data from over 100 data sources and matches and merges data in real time in the internet of things datawarehouse stored in AWS. 3-5 million records are merged and matched to the customer record per day. Texuna uses both standard ETL tools and also bespoke Java development to create the most effective matching capability based on customer needs.	100	Were invited in 2nd round	2 points (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Should be able to work at high intensity in a team, collaborative environment	Texuna have a track record of ontime delivery in complex and demanding projects and to tight timeframes. Our project at Jisc implemented an Enterprise Data Warehouse from Discovery to Live to agreed timelines. This project entailed working closely onsite with Jisc stakeholders to map requirements during an intense three month discovery period. Agile development and delivery by workstreams in parallel expedited completion of both quick wins as well and priority strategic requirements. Collaboration with the business through change management positioned Jisc to operate effectively and efficiently. Business process were reengineered and a controlled data governance process created.	97	Were invited in 2nd round	2 points (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Have Technical & Solutions Architect experience	Our Technical and Solutions Architects ensure solutions are robust, future-proof, secure and vendor agnostic. We integrate open source components and industry standard tools to provide the most cost-efficient and user-focussed processes. This may mean reuse of existing investments in licenced products or complete replacement of the tool if business benefits justify. For example, STA Itembank where we designed a bespoke solution to deliver specific needs, including datamodel, business rules and user interface. We have demonstrated that our solutions meet current requirements cost-efficiently and are also hospitable to incremental growth and enhancement through our work with the NCTL, EduBase, OfS (NSS).	100	Were invited in 2nd round	2 points (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Ability to identify & analyse complex processes and hand-offs	The Texuna EDW project at Jisc analysed data from over 100 disparate sources together with the business processes involved in compiling and preparing data. Data was derived from all areas of the business, each team with their own priorities and focus. Sharing data across the teams in the EDW involved introducing rigorous data governance, improving data quality by identifying master data, including meta-data, in a Kimball-style structure and cross matching incoming datastreams via look-up tables. Effectiveness included redefining business processes to improve timeliness of delivery by using a filestore for text files and enhancing content through use of pre-defined templates.	100	Were invited in 2nd round	1 point (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Ability to clearly communicate technical solutions to non-technical colleagues	Our multidisciplinary project teams include analysts and support consultants who are able to communicate effectively with business and public users. We provide training and user documentation that is clear and easy to follow. Our service support for our larger government projects has included first line service to the end-users of our solutions so we regularly interact with and help users who are not technical and need to user the service to do their job. For our NCTL and OfS(NSS) projects we have provided end-user training, tutorial videos and workshops to promote uptake and identify and resolve improvement suggestions.	98	Were invited in 2nd round	2 points (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Successful delivery of projects that include blended, multi-discipline, multi-stakeholder teams focused on meeting user needs, and demonstrating clear methodology for engagement, problem solving and delivery	Texuna solutions typically have multiple end-user stakeholder types including internal and external users. Each user type has different and important requirements and measures of success. We engage with stakeholders at all levels using interviews, workshops, online portals and questionnaires to solicit needs and priorities. Examples of tools we use are: collaborative agile workshops, Kimball Business Enterprise Matrix , fishbone diagrams and Business Model Canvas to document requirements, identify priorities and highlight quick wins, strategic initiatives and workarounds. Texuna uses Prince2 methodology so that scope is managed effectively and the project planned in stages with Discovery findings directing technical recommendations.	99	Were invited in 2nd round	1 point (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	An understanding of DfE data processes	Texuna collaborate with GDS on the DfE Edubase replacement to pragmatically assure deliveries and successes. We have worked with Digital by Default and Digital Service Standards for many successful public sector projects. Our startups and consumer apps bring 100% user-centered and rapidly-prototyped agile approach to our deliveries. E.g. Indeemo.com is a qualitative research selfie video startup which we can use to research UI and UX. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We have used open source software components extensively for over a decade with extensive data and dashboard reporting expertise.	97	Were invited in 2nd round	1 point (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Proven experience of knowledge sharing and skills transfer with in-house teams so as to build sustainable capability	Texuna collaborated with Jisc to implement the Enterprise Data Warehouse project. Implementation included Jisc staff so they learnt the development processes and were trained to be responsible for support and enhancement after the Texuna handover. Jisc will be self-sufficient in the medium term. Our EDW project ensured that business users learnt to build their own reports and perform ad hoc investigations on the data. Handover included detailed training and documentation so that the business teams are prepared and able to gain maximum benefits from the wealth of high quality data that they are now able to access.	97	Were invited in 2nd round	2 points (3 max)	
DfE	National Pupil Database Data Matching Processing Collation	Demonstrable experience of carrying out research with a diverse mix of users including those with low digital literacy and assisted digital needs	Texuna works with GDS teams under cabinate office guidance. With University College Cork, we have created a visual, interactive workshop-based approach to design thinking focused on different personaes and customer journey. We engage in observation as espoused by the GDS through Indeemo (qualitative research app) to truely understand UI/UX in the context of typical usage. We get close to end users to appreciate their intention, interface interaction and build empathy with each user. We know the GDS opensource frameworks and patterns in use for front end services and already apply these to our public sector projects to ensure compliance.	99	Were invited in 2nd round	2 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Alpha (C)	Recent and demonstrable experience in agile service delivery of a user centred digital service including having been successfully assessed, in a previous project, against the GDS Alpha Service Standard	Texuna delivered Ofsted Fostering Data Collection in Q1-2018. The digital service used agile methodology and thte GDS Alpha Service Standard. Likewise DfE GIAS/Edubase replacement project passed GDS Service Assessment in 2017.\n\nOfsted "Setting Goals" workhops engaged users with 'show-me don't tell-me' sessions to empathise with their methods and motivations, and test our assumptions. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interations of rapid prototyping. Texuna delivered the Ofsted prototype on GDS libraries, created user stories backlog, risk register and Beta phase plan as the key Alpha outcomes.	99	Were invited in 2nd round	2 points (3 max)	Your score was 6, with 9 being the highest score.
DfE	Alpha (C)	Recent and demonstrable experience of success in designing a digital service to replace an existing non-digital service	The Ofsted Fostering Data Collection project was launched successfully in May 2018, a national data collection that documents the fostering capacity and children in the care of fostering agencices. The non-digital service used manual operations that caused issues with data quality and reduced overall user-satisfaction. Texuna delivered a digital service that streamlines all steps in data submission: data collection, validation, immediate data quality reporting and sign-off. Ofsted admistrators now manage data through a backoffice portal. We received excellent written feedback from Ofsted and end users on the new service.	89	Were invited in 2nd round	2 points (3 max)	
DfE	Alpha (C)	Can provide suitable expertise, experience and resource to the project within the specified timescales to allow fast progress and high quality delivery	Texuna's history and expertise in education and agile process driven and secure standards compliance together with GDS competence allows us to get going and assure high quality outputs.\n\nQuality is maintained using rigorous automated testing together with Sprint Reviews and Retrospectives. We have experience managing academies and free schools data and proccesses since 2008 through GIAS/(Edubase2)\n\nTexuna can combine a multi-disciplinary inhouse pool of long term UK-based employees and experts together with 3rd party freelancing and contractor model to provide required expertise onsite and long term continuity.	87	Were invited in 2nd round	2 points (3 max)	
London School of Hygiene and Tropical Medicine		Ability to Produce Expected output artefacts	Texuna have 17 years history working almost exclusively on educational and healthcare datasets (with PHE/Jisc/DfE/NCTL/HESA/Ofs/UCC). We define client systems, document data schemas, calculate metrics and the historic granular level data interdependencies in legacy databases. E.g. our Jisc data warehouse discovery phase specified 140+ feeds from dozens of source systems. Exploratory analysis workshops map workflows to an enterprise data model and security model with recommendations for process improvement. We manage data as an asset by architecting a data flow pipeline through a Kimball Enterprise Business Matrix. We transfer knowledge through less-formal, agile collaborative working and formally through training and handover processes.	100	Were invited in 2nd round	Not requested	
London School of Hygiene and Tropical Medicine		Experience in the Primary Systems involved	Texuna has deep integration expertise across a range of source systems both bespoke and COTS. We work with sensitive data (student data or financial and payroll data) from a range of systems and software stacks, both vendor-driven (Microsoft, Oracle etc.) and cloud-driven (AWS, Azure, VMWare, Salesforce, etc.). As a Pentaho partner, we work with ETL to map data from CSV, cloud APIs, databases and proprietary systems, with the extensibility to create customised source system plugins for bespoke solutions, while mapping data flows in a metadata injected workflow to define a data pipeline. We build IAM and integrate ActiveDirectory/LDAP/SAML/OpenIDConnect.	98	Were invited in 2nd round	Not requested	
London School of Hygiene and Tropical Medicine		Stakeholder management Experience	Texuna deliver successful projects across multiple phases with continuous internal and external stakeholder engagement, often collaborating with multiple suppliers. At Jisc Enterprise Data Warehouse we brought dispersed teams across 6 divisions together to deliver a conformed understanding of the enterprise, using the Kimball Enterprise Business Matrix together with a Business Model Canvas. At DfE we work with a group of suppliers to integrate up to 10 large source systems through single Identity and Access Management system. This requires timely and relevant engagement and effective communication via Stakeholder maps, agreed communication and quality plans, and timely progress reporting.	97	Were invited in 2nd round	Not requested	
London School of Hygiene and Tropical Medicine		Ability to meet timescales	Texuna has a consitent track record of meeting delivery timescales. Discovery Phase delivers a Project Execution Plan to realise the data-as- asset and information maturity vision. The plan uses agile delivery to translate the business case strategy into a portfolio backlog of Epics and User Stories arranged in 90 day Rolling Wave timeboxes and fixed resource budgets. Scope definition and agile prioritisation ensure critical success factors are addressed first. A brief orientation is followed by a Discovery deep dive. The Project Execution Plan stipulates the input and responsiveness required of both the client and supplier to get things done.	99	Were invited in 2nd round	Not requested	
London School of Hygiene and Tropical Medicine		Show ability to Define and prioritise KPIs	Top down discovery workshops with all senior stakeholders help us classify information requirements and arrange KPI's into a hierarchical tree structure, using a Business Model Canvas and Balanced Scorecard tools to help identify gaps. We implemented a financial reporting and Customer KPI framework at Jisc, using the data governance framework to generate data quality scorecards to determine the availability and reliability of the data sources. Where possible we automate centralised collection from system-generated sources (e.g. weblogs/syslogs/Google Analytics etc.) to enhance confidence in data. Poor data can be supplemented through manual or tactical submissions to ensure priority KPIs are not lost.	100	Were invited in 2nd round	Not requested	
London School of Hygiene and Tropical Medicine		Demonstrate knowledge of high and low level data warehouse and BI architecture, with a particular focus on Student data	Texuna are data managers, partnered with Pentaho for ETL and AWS for Reshift warehouse (both used on the Jisc cloud-hosted Enterprise Data Warehouse). We used a metadata injection framework to help standardise and automate over 140 feeds to create a data pipeline (pre/mirror, stage, ODS/MDS, EDW and data marts to reporting tools Tableau and SAPBusinessObjects). We delivered a star schema with support for Type2 Slowly Changing Dimensions. We automated pipeline metadata delivery to a wiki to track data lineage and report calculations. At National College for Teaching and Leadership we manage a 20+ year historic trainee data for statutory reporting.	100	Were invited in 2nd round	Not requested	
London School of Hygiene and Tropical Medicine		Demonstrate knowledge and experience of cataloguing data sources	For Jisc data governance we conducted a source system audit during the Discovery Phase. We mapped the sources, locations, network details, infrastructure and platform stack and key stakeholders (sysadmins, licence holders, business users etc.). We built a catalogue of source systems and created a data ownership framework, creating a RACI matrix and putting data supply contract templates together for the business to implement. We also ran a series of workshops to focus on data quality and to conform metrics and dimensions, including helping data owners to clean up poor quality data at source through data matching and reconciliation techniques.	99	Were invited in 2nd round	Not requested	
Met Office	SurfaceNet Collate Platform	Experience/evidence of working on AWS utilising PaaS based tools and technologies to implement modular solutions to provide ETL functionality.	Texuna are an AWS Consulting Partner with a number of certified staff. Texuna have worked extensively with AWS platforms and services over the last 5 years, including using Ansible and Terraform to automate the infrastructure and platform configuration as software. We have used a range of AWS services in a number of projects to collect and manage data flows and data warehouses. We have deployed stateless and serverless technology as well as ETL PaaS technology to orchestrate dataflows between sources and streams of data to create efficient workflow pipelines. Key customers are public sector, central bodies and universities.	98	Not shortlisted	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Met Office	SurfaceNet Collate Platform	Experience of working alongside a customer team to deliver an integrated platform (ensuring knowledge transfer).	Texuna worked alongside Jisc Enterprise Data Warehouse project. All levels and roles were engaged including: business knowhow, stakeholder engagement, technical coding and efficient handover of source-code. Texuna's transparent partnership approach focuses on high levels of quality technical documentation to support handover and on-the-job training. Project signoff points ensure staff are engaged in design and implementation. Texuna acts as an extension of the client team. Core documentation is available to all via an online and versioned document repository. Texuna are happy to use our clients project and development tools to help ensure that knowledge transfer and access to information is high.	100	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Ability to use Agile methodologies while complying with mandated international (meteorological) standards (provided).	Texuna have experience and understand the often competing pressures of working in structured and standards based environments while also delegating decision making to agile teams of developers and scrum master. We have blended Prince2 and the agile sprinting methodology for project management over the last 3 years. We use an interactive, backlog based collaborative development methodology with visual tools and workgroup techniques. We use tools including Pivotal Tracker and Slack, and have a fully continuous integration and continuous deployment approach to cloud solutions. We use daily standups / scrums, bi-weekly reviews ('show me, don't tell me') and lessons-learned retrospectives.	100	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Experience of dealing with data with prescriptive data processing and timeliness rules.	Texuna work with ETL tools and Data Warehouses (e.g. Jisc - assessing, integrating and migrating 140+ feeds into a conformed enterprise data model, as well as re-supplying customer-oriented data through a new 'MyJisc' portal). We have extensive integration and API experience (E.g.Edubase) as well as migrating data from historic sytems of record to new cloud-based replacement systems. Replacement systems are often bespoke in nature, so during migration we build test straps that SQL-based sanity checks to ensure that replicated data that is migrated is absolutely assured to be identical to original source data irrespective of format or schema.	98	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Ability to surge resources to support agreed project plan	Texuna have a big team and will be able to provide additional resources if required, subject to reasonable notice to ensure the right resources are availble. Texuna also have staff in other near shore offices - in particular Cork, Ireland - where technical staff will also be available to join the project if so required.	55	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Experience of working with and designing scalable APIs for a wide variety of end users.	Texuna worked with GDS over the last 12 months to migrate a legacy service to a fully functioning Rest API, allowing backend systems to be connected to a new frontend that is aligned with GDS design patterns and standard. Texuna create microservices with REST API endpoints using YAML documentation to automate language-independent code generation. This produces well formatted documentation, with test stubs provided through Swagger. Simplfied integration code and automatic test scripting gives high quality assurance long term over the REST API. Perfomance and penetration testing of REST API guarantees security and avaliablity of live services.	96	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Utilise the most up to date IoT toolsets and understanding of IoT Security Foundation best practice.	Texuna's experience with Jisc Eduroam and Govroam services used large scale IoT tools to capture sensitive personal information and securely process it for aggregated reporting while anonomysing data. This used AWS and open source services to capture billions of datapoints and manage streaming data effectively. Texuna's IoT solutions use highly perfomant cloud queues, big data databases and highly scalable computational resources based on AWS services including IoT Core, stateless Lambdas, Kinesis, S3, Machine Learning, DynamoDB, CloudWatch, CloudTrail and Elasticsearch Services, with built-in integration capabilities using Kibana.	86	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Digital design skills with a focus on user experience.	Having worked in central government public sector for over 12 years Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. For example, early versions of the task list pattern were used in by NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life Long Learning UK. All Texuna user facing deployments are at least WC3 AA level accessible and have been independently tested and verified.	96	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Experience using Continuous Integration development approaches.	Texuna CI/CD is based on: *Agile ETL development *ETL code package preparation *Automatic testing of ETL code *Automatic deployment Texuna has developed a system for continuous automatic testing of ETL transformations. The framework simplifies test development, testing each data stream separately and cuts testing time. The framework is based on two separate tabs in Excel (Initial dataset; and Expected result). The framework delivers an automated regression report of testing results for each change in ETL code. Texuna uses Git for ETL code version control, Jenkins CI + Allure for automatic package preparation and continuous integration. Ansible and Terraform are used for continuous delivery.	103	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Experience of delivering projects within the environmental monitoring sector ideally from a dispersed network of remote monitoring solutions.	Texuna have helped the Oxford Brookes University with some troubleshooting on an ETL and Oracle platform that was used for collecting data on intelligent facilities management which collected building environment data. Texuna's involvement was limited to technical resolution of problems and bugs on the platform rather than on the architecture or operation of the system.	55	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	A proven partnership with Amazon delivering AWS cloud hosted solutions, for large organisations.	As an AWS Consulting Partner Texuna worked with Jisc to introduce an Enterprise Data Warehouse entirely on AWS platform and services. We collaborated onsite with Jisc in Bristol and Harwell over 18 months to integrate 100+ Jisc services data feeds across thousands of UK Higher Education Members, Further Education institutions and other customers. Texuna trained Jisc staff on agile delivery processes on a daily basis, with joint responsibility to deliver key releases. Texuna provided coaching and mentoring, and managed AWS infrastructure as software, connecting JANET via VPN to AWS, and integrating ActiveDirectory to AWS services.	95	Not shortlisted	Not requested	
Met Office	SurfaceNet Collate Platform	Proven experience of working with government sector organisations to deliver projects with complex regulatory requirements including international standards and governing bodies.	Texuna collects, integrates and publishes statutory reports and data for our public sector clients to meet their regulatory requirements (e.g. NCTL, NSS). Services include running a secure identity and access management portal for the Department for Education to enable Single Sign-On access to departmental resources over sensitive children's data from schools. All Texuna offices are tested by Brittish Standards Institute for ISO9001, 20000 and 27001 certification without exclusions to give the highest level of assurance to our public sector clients. Texuna work under the oversight of HESA and OfS when dealing with higher education sector data on behalf of universities.	100	Not shortlisted	Not requested	

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NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Demonstrable expertise and experience designing scalable analytical solutions (e.g. discovery work to facilitate requirement elicitation, process design). (20 points)	Texuna delivered enterprise analysis and reporting on Jisc-wide data internally and for hundreds of member institutions. Discovery included a full systems audit, bottom-up analysis of data sources and top-down stakeholder requirements gathering via workshops, surveys and interview sessions. Discovery outputs: prioritised requirements backlog, revised business processes, governance and reporting recommendations. The solution delivers: statutory, management, ad-hoc business and board-level reports, standardised robust business processes to gather data, data governance to ensure consistency and use of common vocabulary. It utilised existing reporting and new tools to give best value with minimal retraining. Similarly Texuna scales OfS National Student Survey analytics.	99	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Demonstrable expertise and experience in data capture from multiple systems. (20 points)	Our Jisc ETL solution efficiently integrated over 100 distinct datastreams and datafeeds comprising billions of records without performance impact on source systems. Sources included databases with and without API's configured together with flat files and email data. For the Department for Education, our teacher training data warehouse, manages 10 collections annually from training providers. Data from external sources is integrated to enrich the data. Texuna have implemented Big Data projects importing data from sources, especially where Change Data Capture isn't available. Our strong expertise in data matching and cleansing provides solutions which increase data quality with full audit and traceability.	98	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Proven track record of project delivery working with NHS data. (20 points)	Texuna have 17 years history working with healthcare datasets, including EPR and patient records systems to Primary Care Trusts on N3. Recent projects include the Epidemiological and Patent Information database (EPIDOS REDMS) for Public Health England. Working with PHE and stakeholders, Texuna restructured existing data structures and migrated 50+years of patient and radiology epidemiology records. Several data flows and interfaces were supported as is, with several others redesigned to better meet needs. This included both supplying and processing of data from Employers and researchers, as well as NHS England and NHS Scotland patient, cancer, death and event records.	98	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Demonstrable expertise and experience at an organisational level in data linkage between new data systems and existing data systems (including cloud integration). (20 Points)	At Jisc we delivered a conformed data model integrating new and existing data systems in a heterogeneous cloud enviroment. Tools were: Kimball Enterprise Business Matrix and Business Model Canvas. We assessed, integrated and migrated 140+ feeds into a conformed enterprise data model, and re-supplied customer-oriented data through a new 'MyJisc' portal. This included public cloud, in-house systems and proprietary cloud SaaS like Salesforce. Our DfE projects, e.g. GIAS include YAML-defined API's to integrate with other department and third party services. When we migrate data, we build test straps using SQL-based sanity checks to assure integrity of migrated data.	98	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Demonstrable expertise and experience building on and maximising existing architecture and integrating it with new solutions (leveraging Microsoft SQL server/APS for analysis). (20 points)	At DellEMC we import Salesforce data and optimise it via Alteryx and MsSQLServer to create a genetic fingerprint of delivered products and services. A star-schema simplified strategic reporting and analysis. ETL cleansing and transformation facilitated quality improvements, auditing and versioning. Our Department for Education Teacher Training data collection service has grown from a single data collection to support multiple collections and datasets on SQLServer/APS over 15 years. Texuna has migrated legacy solutions from hosted environments to cloud and leveraged cloud services provided by AWS and Azure clouds. E.g the DfE GIAS inhouse solution initially on SQLServer is now Cloud hosted.	100	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	A minimum of five years of stakeholder engagement experience, including managing challenging stakeholders and those with clinical and/or non-technical backgrounds. (20 points)	We have 15+ years experience engaging public sector stakeholders building empathy in visual design-thinking workshops to deliver successful projects. Non-technical staff participate in interviews, 'show-and-tell' sessions and prioritisation workshops to identify and confirm problems and priorities. At DfE we work with third-party system suppliers to integrate 10 large mission-critical systems through our SSO Identity and Access Management system. This required timely engagement and effective communication via Stakeholder maps, communication and quality plans and timely progress reporting. For Office for Students, over 5 years, we have engaged directly with institution end-users via a portal and workshops to elicit and confirm enhancements.	100	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	A minimum of three years' experience in application of agile approaches to delivering complex systems, in line with GDS Service Standards. (10 points)	Texuna implement the 18 principles for delivery in the GDS service standard since April 2014. We have worked with Digital by Default and Digital Service Standards for many successful public sector projects. We collaborate with GDS on the DfE GIAS project to pragmatically assure deliveries and gateway review successes. Our Ofsted Fostering Data Collection went live in May18, based on user-centered and rapidly-prototyped agile sprints and delivery reviews. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We partner with our clients to ensure stakeholders are fully involved and informed throughout the project.	97	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Demonstrable expertise and experience using data visualisation packages (e.g. Tableau, Power BI). (10 points)	Texuna extensively use Qlik, Tableau, PowerBI and Quicksight to deliver comprehensive dashboards and analytical solutions that use Trend graphs, Comparative analysis, League table, Word wall. Texuna has received excellent feedback from end-users. E.g. we give a unified view of 100+ Jisc services to all its Members and Suppliers, enabling strategic and operational decision making. With MSB and BUPA we configured Qliksense dashbaords to analyse patient survey data including: Individual Analysis, Comparison, Sector Analysis, and Qualitative Analysis. With Universities reporting we support inhouse analysis on PowerBI and Quicksight.	87	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Experience of handling sensitive data, demonstrated by information handling policies and processes. Recognised accreditation desirable. (10 points)	Texuna is certified to ISO 27001, 20000-1 and 9001 by BSI. Our solutions embrace 'privacy-by-design'; to restrict user-access within their permission level. Live data is only held in client accessible environments within the EEA and not moved outside the EEA. Data classification and sophisticated obfuscation routines defined in a DPIA manage data movement between dev/uat/production environments, with all sensitive data encrypted at rest. Testing is performed on obfuscated data only. Our EPIDOS solution securely stores sensitive medical records for Radiography Epidemiology at PHE. Our National Student Survey website obscures results for low number of hits to prevent identification of individuals.	100	Not shortlisted	Not requested	

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NHS Improvement	Nottinghamshire Integrated Care System (ICS)	A comprehensive understanding of the NHS landscape.	Texuna work with PHE to deliver the EPIDOS database to hold exposure to nuclear materials and patient record information. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, buisness process management and extensive input and output validation. Complex data feed manipulation via reprogrammable java script functions to manage data feeds for the 50+ year old radiology epidemiology datasets. Aggregated data reporting and data anonymisation for sharing is supported. Prior to NPfIT Texuna installed EPR systems to PCTs.	97	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	A substantial understanding of NHS costing data.	Texuna is familiar with commissioning and costing practices in the NHS but has not worked directly on costing data to date. However we are very familiar with financing data marts and financial reporting and believe we have the necessary competence to work with this data. We can also hire short term expertise with the necessary experience to support the project should this be deemed necessary.	65	Not shortlisted	Not requested	
NHS Improvement	Nottinghamshire Integrated Care System (ICS)	Demonstrable experience using data blending packages (e.g. Alteryx).	Texuna is a data management specialist and has used a wide range of tools for data blending. As a vendor neutral supplier we have focused on open source options for ETL (Talend and Pentaho) but have also worked with customers when they have already made investments in existing tools e.g. we used Alteryx for data transformation, integration and detailed report generation for DellEMC project to streamline and enhance sales and financial data and enable the business to derive reliable and comprehensive reports. Texuna leveraged Alteryx's data validation capabilities to enhance and generate new KPI metrics.	95	Not shortlisted	Not requested	
Sports England	Survey	Experience in using evidence-based research to inform a user-centred redesign, focused on external users' needs, end-to-end user journeys, motivations and goals	Texuna has worked with many public sector clients to create user centred design, focused on matching published GDS standards and best practices with design thinking and customer journey mapping. We have worked with startups including Checkmate and Indeemo to help them create the simplest possible mobile apps that really meet the most important core needs of a user in the simplest way possible, while guaranteeing an overall experience for users that is very compelling. In all cases - design is driven by user feedback and usage rather than the assumptions of the designers.	93	Not shortlisted	Not requested	
Sports England	Survey	Proven experience of complex user journey mapping across ranges of users and stakeholders	Texuna built a mobile video app with Indeemo that provides qualitative research tracking user behaviour and experiences more directly than through artificial workshops. This approach informs and improves user experience by testing different scenarios on isolated audiences for market research - not based on questionnaires but on remote observation. Through task workflow, focus group users keep a tracking diary of their experience, i.e. an authentic visual record of their journey and interaction using a test suite. Action research is done when researchers respond to posts by users to analyse and moderate data. This informs improvements along with feedback from users.	100	Not shortlisted	Not requested	
Sports England	Survey	Proven experience in using robust metrics, analytics, search data and user feedback to audit and define key content and services	Texuna experience includes: * OfS - national student survey publication with analytics, reporting and dissemination. Data collected by Ipsos Mori. * Jisc data warehouse - data cleansing and sector reporting for HE/FE members and internal use. * NCTL data warehouse and statutory reporting on initial teacher training. De factor source for skilled workforce data. Data collected from all data providers with clean, search and analyse data with full auditing and version control. Over 250 fields and 60 Million records maintained with 2,000 registered users. * EduBase - the primary source of school master data in England (http://www.education.gov.uk/edubase/home.xhtml), used by the public.	101	Not shortlisted	Not requested	
Sports England	Survey	Experience delivering engaging and intuitive user experience in web solutions	Texuna is actively working with a small number of startup operations to deliver websites with engaging content. These websites are either delivering help and support (Tweakaboo) or providing a useful budget tracking tool for Pupil Premium spend to busy schools and teachers (EduKit). Our projects are successful because we engage end users directly and implement changes based on their feedback and stated business needs. See Tweakaboo: https://www.tweekaboo.com/ and EduKit: https://data.edukit.org.uk	70	Not shortlisted	Not requested	
Sports England	Survey	Experience of prototyping, testing and iterating with users and stakeholders	Our agile methodology, provides user engagement, frequent demonstrations of cloud-based product continuously integrated and deployed for end-user feedback. Ideas are prioritised by product owners/champions. Prototyping is paper-based, low fidelity wireframes online, high fidelity scripted demos and release of features. Continual testing using automated tools, test scripts and manual testing ensure quality is maintained. Examples: * Checkmate - mobile neighbourhood watch app developed and tested in small work groups. * Indeemo - mobile video app to capture 'in-the-moment' qualitative research and deliver feedback from end users * EduKit - school welbeing questionnaire and performance data application to evaluate impact of Pupil Premium spend.	102	Not shortlisted	Not requested	
Sports England	Survey	Proven successful development of back-end technologies, databases, developing APIs, and meeting data standards. The dataset is extremely complex so expertise in this area is vital.	Texuna is a data integrator: * NCTL - 20 datasets are integrated using SOAP and Restful web-services as well as custom APIs. Quality is maintained through complex validation rules and inter-field dependency checks. * DfE EduBase - a validation workflow automates the open and close the official list of schools for government. EduBase exposes web services and we are working with GDS to feed the data to the official school data register. * Public Health England - we have complex data feed manipulation via reprogrammable java script to manage annual data feeds for a 50+ year old radiology epidemiology dataset.	100	Not shortlisted	Not requested	
Sports England	Survey	Have experience designing services using complex data to extract value and insight with ease	Our NCTL, Jisc and OfS solutions are all highly bespoke creations designed and optimised to meet exacting user needs. Discovery work to ensures needs are identified and arranged in priority order. We provide NCTL with multiple portals geared to different audiences and stakeholders with different tools to interrogate data. For OfS NSS results website we provide advance analysis capabilities to the desks of the institutions for the first time so that they can analyse their own questions on Student experience and feedback.	82	Not shortlisted	Not requested	
Sports England	Survey	Technical expertise of front-end, UI web development and responsive web design (HTML5/CSS/JS)	Our interactive projects include: * Tweakaboo: https://www.tweekaboo.com/ * Indeemo: http://indeemo.com/contact/ * EduKit: https://data.edukit.org.uk These are all mobile ready responsive applications that work on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Our work with startups keep us up to date with the latest technologies and help us migrate best practices to government projects. Server side rendering all work with CSS so that we can easily update and reflect branding changes when needed, and all our public sector projects meet GDS standards.	89	Not shortlisted	Not requested	
Sports England	Survey	Demonstrate experience of delivering agile projects in sometimes non-agile environments	Texuna blends Prince2 with Agile methods to meet public sector client needs and deliver to their priorities and timeframes under traditional contracts. We help clients unfamiliar with Agile by engaging and leading them. We blend traditional high level MoSCoW matrix of requirements often used in contracts with agile priorities documented in agile support tools such as Pivotal Tracker, delivering collections of 2-week sprints within defined quarterly timeboxes.	67	Not shortlisted	Not requested	

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Sports England	Survey	Detailed understanding of government digital service standard and Technology Code of Practice, including GDS service design manual and wider industry-standards	Our Government projects adhere to Technology Code of Practice and digital service standard. We are working with the Government Digital Service team to ensure EduBase meets the GDS Digital Service Standard and to feed their Schools Registery via API. Our Secure Access project has a rigorous change board as over 10 services depend on it for user access so changes are strongly controlled. Our projects take and pass service gate reviews and risk assessments. We follow ISO standards for quality, information security and service delivery.	85	Not shortlisted	Not requested	
Sports England	Survey	Demonstrate an understanding of and ability to deliver compliance with the government's Service Standard	Texuna has delivered systems to Government and Government Agencies since 2003. We adopt Government processes and standards as they apply to our business. This includes full use of the Government's Service Standard for our EduBase, Secure Access and NCTL projects, although these sound principles are used in all our other projects. We have successfully passed Government RMADS audits and are certified to ISO standards for Quality, Information Security and Service Management.	71	Not shortlisted	Not requested	
Sports England	Survey	Demonstrate GIS capabilities and understanding of geographic data	Texuna has presented geographic data on maps for a number of our projects as follows: * location data is used to search for educational establishments in the EduBase portal using Google Maps. * Our SIR datacollection system displayed location data using Mapbase. * Jisc can use reports defined in Tableau to look at regional and local maps and presentations. * TravelGuide is a smart location-aware mobile app that makes exploring travel, history and sights data from multipe sources including wikipedia available easily.	82	Not shortlisted	Not requested	
Sports England	Survey	Experience creating device agnostic solutions	Texuna projects are all used widely in the field by a range of users on different devices - including mobile devices. We create our user interfaces to be browser agnostic and responsive, and create automated regression tests to ensure apps remain compliant. We work with html based apps, as well as native Android and iOS code to deliver optimised experiences. We have worked with a range of technologies and frameworks such as Angular.js/HTML5, React, Cordova, bootstrap etc. We test against the major browser types and range of versions. Our quality assurance processes ensure that our users will always have a positive experience regardless of the device type they use.	109	Not shortlisted	Not requested	
Sports England	Survey	Experience working with Government departments or bodies	Texuna has been a supplier to Government bodies since 2003 we have developed and currently manage the following services for Central Government: * Initial Teacher Training Database Management system for the NCTL * EduBase database of educational establishments for the Department for Education * National Students Survey results site for OfS * Secure Access Identity and Access Management solution for the Department for Education * Enterprise Data warehouse solution for JISC	71	Not shortlisted	Not requested	
Sports England	Survey	Provide evidence of similar digital projects, ideally ones that have used complex survey data	We publish the results of the National Student Survey (NSS) for OfS since 2014. We administered and published the Newly Qualified Teachers (NQT) survey for NCTL.	26	Not shortlisted	Not requested	
Crown Commercial Service	Web-based FM Beta	Provide examples of where they have provided an iterative delivery of high value, web-based applications using AGILE methodologies, where Python has been used for development and release to production. 10%	Texuna delivers in a number of programming languages, predominantly Java and Javascript. Python is used for a limited amount of BI and analytics use cases. All projects are high-value public sector projects and are all web-based - many of which are single page apps that use GDS libraries. All projects are based on agile methods - including data warehouse analytics projects. We adopt daily standups, bi-weekly sprints with show/tell and retrospectives, as well as identifying formal roles (project sponsor, project champion, product owner, scrum master).	85	Not shortlisted	Not requested	
Crown Commercial Service	Web-based FM Beta	Provide examples where the supplier has defined and set up environments for development and production on an AWS platform and subsequently tested and released a new product into production 5%	Texuna are AWS consulting partners and have experience migrating legacy and hosting new applications on both AWS or Azure. For example, The EduKit project uses stateless microservices to upload 100's of schools data nightly. Our development standards ensure code and network is protected from malware attack and vulnerabilities, with automated unit/integration testing for every release package and penetration testing prior to live running. Texuna worked with Jisc to build an AWS-based Enterprise Data Warehouse that integrates 100+ Jisc services data feeds across thousands of UK Higher Education Members, Further Education institutions and other customers.	94	Not shortlisted	Not requested	
Crown Commercial Service	Web-based FM Beta	Provide examples, in the past 12 months, they have delivered user research and user testing with user groups from a combination of internal service provider and external consumer organisations 5%	Texuna publish the National Student Survey results with the Office for Students, providing an analysis tool for thousands of end-users to report their own data against the sector. Annually, we test analytics internally with Ipsos Mori and OfS staff, as well as engage with the Higher Education sector and National Union of Students. The service is well received with user workgroups providing suggestions for improvement. For Ofsted we delivered a Fostering Data Collection service in Q1 2018 after conducting internal user research combined with participation from foster providers based on early low-fidelity prototypes and mockup wireframes and video prototypes.	99	Not shortlisted	Not requested	
Crown Commercial Service	Web-based FM Beta	The Supplier must demonstrate experience in the last 18 months of delivering web-based applications that provide dynamic and easily updatable content management for the client to maintain as required. 5%	We worked with Ofsted over the last 9 months to design their content according to the GDS style guide, delivered through separated frontend and backend implementations to simplify updates. Dynamic content including business rules is driven through the backend database and can be fed from other online or offline sources. We collaborate with clients and users to ensure we empathize with them and understand their requirements from 'their shoes', creating a design that is centered on their needs and journey objectives. We test paper designs, working prototypes and beta deliveries with users through 'show and tell' reviews and internal retrospectives.	100	Not shortlisted	Not requested	
Crown Commercial Service	Web-based FM Beta	The supplier should provide examples of where they have provided a solution at Government OFFICIAL security level. 5%	All Texuna Department for Education projects are at OFFICIAL level. These include Secure Access (Single Sign-On beyond the firewall to all schools), Getting Information About Schools, NCTL Performance Profiles, STA Itembank. Ofsted Fostering Data Collection is a non-departmental project. Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed audits and RMADs assessments including third-party penetration tests. Our developers follow OWASP best practices and we internally penetration test all our solutions. Texuna have deep expertise in securing machines and virtual private networks through configuration of infrastructure as software.	95	Not shortlisted	Not requested	
Crown Commercial Service	Web-based FM Beta	The supplier should give examples of where they have applied Agile practice and methodology to ensure timely delivery according to an agreed plan. 5%	Texuna has a consistent track record of meeting delivery timescales. Discovery Phase delivers a Project Execution Plan to realise the data-as-asset and information maturity vision. The plan uses agile delivery to translate the business case strategy into a portfolio backlog of Epics and User Stories arranged in 90 day Rolling Wave timeboxes and fixed resource budgets. Scope definition and agile prioritisation ensure critical success factors are addressed first. A brief orientation is followed by a Discovery deep dive. The Project Execution Plan stipulates the input and responsiveness required of both the client and supplier to get things done.	98	Not shortlisted	Not requested	
Crown Commercial Service	Web-based FM Beta	The supplier should confirm that their resources could work as a mixed disciplined team with both on-site and off-site working as required. 5%	Absolutely - Texuna worked collaboratively onsite with Jisc in London, Bristol and Harwell over 2 years to deliver a greenfield Data Warehouse. Mixed team roles engaged all levels including business know-how, stakeholder engagement, technical coding/testing and efficient handover of source-code and cloud develops. High levels of User Stories and quality technical tickets support handover with standardised agile processes. Texuna extends the client team to build competence and capability. We adopt the clients preferred tools to minimize friction and maximize knowledge transfer. Daily standups and 2-week sprints with collaborative reviews ensure offsite working remains fully engaged.	95	Not shortlisted	Not requested	

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Crown Commercial Service	Supply Teacher Services Beta	The supplier should provide examples of where they have provided an iterative delivery of high value, web-based applications using AGILE methodologies. 10%	Texuna implement the 18 GDS principles for agile delivery since 2014. For example we have worked with Digital by Default and Digital Service Standards jointly with GDS and DfE on the Getting Information About Schools project to pragmatically assure deliveries and gateway review successes. Our web-based Ofsted Fostering Data Collection went live in May2018, based on user-centered and rapidly-prototyped agile sprints and iterative delivery reviews with internal stakeholders and external endusers. Our multidisciplinary team ranges from user research to security, privacy and penetration testing, such as agile migration of data to cloud based data warehouse & BI for Jisc.	99	Not shortlisted	Not requested	
Crown Commercial Service	Supply Teacher Services Beta	Provide examples where the supplier has defined and set up environments for development and production using PaaS and subsequently tested and released a new product into production 5%	Texuna are AWS consulting partners. We migrate legacy platforms, develope and hoste new applications on VMWare, AWS and Azure PaaS platforms for 5+ years. We help startups like EduKit using stateless microservices to upload 100's of schools data nightly. We use Ansible and Terraform to automate the infrastructure and platform configuration as software to give cloud portability eg with NCTL and DfE dev/UAT/Prod environments. Our development standards ensure code and network is protected from malware attack and vulnerabilities, with automated unit/integration testing for releases and penetration testing prior to live running - eg with Jisc and Oxford Brookes University.	99	Not shortlisted	Not requested	
Crown Commercial Service	Supply Teacher Services Beta	Provide examples, in the past 12 months, where they delivered user research and user testing with user groups from a combination of internal service providers and external consumer organisations 5%	Texuna publish the National Student Survey results with the Office for Students, providing an analysis tool for thousands of end-users to report their own data against the sector. Annually, we test analytics internally with Ipsos Mori and OfS staff, as well as engage with the Higher Education sector and National Union of Students. The service is well received with user workgroups providing suggestions for improvement. For Ofsted we delivered a Fostering Data Collection service in Q1 2018 after conducting internal user research combined with participation from foster providers based on early low-fidelity prototypes and mockup wireframes and video prototypes.	99	Not shortlisted	Not requested	
Crown Commercial Service	Supply Teacher Services Beta	Demonstrate experience, in last 18 months, of delivering web-based applications providing dynamic and easily updatable content management for client to maintain and be able to migrate to other platforms. 10%	We worked with Ofsted in 2017-2018 to design their Fostering data collection according to GDS guidelines, delivered through separated frontend and backend implementations for maximum flexibility. Dynamic content (data and business rules) is can be managed online and offline, and can be fed to or from other online or offline sources via API. We automate infrastructure as software for quality assurance, portability and disposability. We test paper designs, working prototypes and beta deliveries with users through 'show and tell' reviews and internal retrospectives to evaluate the easiness of content updates through various collection and publication tools.	96	Not shortlisted	Not requested	
Crown Commercial Service	Supply Teacher Services Beta	The supplier should give examples of where they have applied Agile practice and methodology to ensure timely delivery according to an agreed plan. 5%	Texuna delivered Ofsted Fostering Data Collection in Q1-2018, and DfE Getting-Information-About-Schools project in 2017 using agile methodology with public sector client teams and GDS contractors. We define a Project Execution Plan with the client that puts users and data at centre and technology as an enabler. We use agile delivery to build user empathy, create an effective user journey, and translate the required outcomes into a portfolio backlog of Epics and User Stories. We assure timely delivery via 90 day Rolling Wave timeboxes with minimum resource availability. Weekly backlog grooming and agile prioritisation ensure critical success factors are always addressed first.	100	Not shortlisted	Not requested	
Crown Commercial Service	Supply Teacher Services Beta	The supplier should confirm that their resources could work as a mixed disciplined team with both on-site and off-site working as required. 5%	Absolutely - Texuna worked collaboratively onsite with Jisc in London, Bristol and Harwell over 2 years to deliver a greenfield Data Warehouse. Mixed team roles engaged all levels including business know-how, stakeholder engagement, technical coding/testing and efficient handover of source-code and cloud develops. High levels of User Stories and quality technical tickets support handover with standardised agile processes. Texuna extends the client team to build competence and capability. We adopt the clients preferred tools to minimize friction and maximize knowledge transfer. Daily standups and 2-week sprints with collaborative reviews ensure offsite working remains fully engaged.	95	Not shortlisted	Not requested	
Ofsted	Inspection Reports as web content	Demonstrable experience of running a Discovery phase for a public sector body in line with Government Digital Service Standards. (Within the last 2 years).	Texuna worked with Ofsted from December 2017 to build the Annual Fostering Data Collection system. The Discovery phase involved building paper prototypes of screens and workflow and these were shared with a 10% sample of the end-user base. Screen layout and content was refined in light of the feedback and the workflow simplified. Data received from end users was tested in ETL transformations to ensure that the final design worked as expected. Screen mockups were also produced to finalize the designs and share with users prior to completion of alpha. Alpha was successful and the project continued to beta phase.	100	Not shortlisted	1 point (3 max)	Does not mention user needs or primary research, only testing once prototypes developed, not quite in line with usual GDS approach to discovery.
Ofsted	Inspection Reports as web content	Recent and demonstrable experience of turning existing content into web content that is structured, presentable and optimised for web. (Within the last 2 years).	Texuna have worked with a large commodity trader and with the Department of Finance in Ireland to deliver a cloud-based eDiscovery and eDisclosure platform that is GDS compliant. The project consumes terabytes of historic file content from email servers, file servers and legacy storage. All files are converted to text, indexed and delivered through a web-based workflow. The workflow is optimised for exploratory analysis and case management to support documentation review and legal disclosure. The system can also be used for GDPR and FoI requests and is based on GDS Frontend libraries for the web application.	96	Not shortlisted	2 points (3 max)	Good relevant example.
Ofsted	Inspection Reports as web content	Experience of analysing existing business processes managed by a legacy IT estate. (Within the last 2 years).	Texuna worked with Jisc across 3 independent business units and an estate of dozens of legacy systems on a 2-year enterprise data warehouse project. Texuna conducted a 4-month discovery phase to analyze all source systems, looking at governance, data owners and future directions for upgrades and data integration. Texuna conducted almost 100 interviews and more than a half dozen workshops across team boundaries to create a confirmed and shared information architecture for the business across more than 100 Jisc services to its members. This included helping the member team redesign the information delivery on a relaunched member portal.	98	Not shortlisted	2 points (3 max)	Comprehensive project at scale.
Ofsted	Inspection Reports as web content	Recent and demonstrable experience of working with organisations to change their way of working including introducing service design or user-centred design methodologies. (Within the last 2 years).	At Ofsted, Texuna delivered a Fostering Data Collection service in Q1 2018 after conducting internal user research combined with participation from foster providers based on early low-fidelity prototypes and mockup wireframes and video prototypes. We worked together in 2017-2018 to design their Fostering data collection according to GDS guidelines. We tested paper designs, working prototypes and beta deliveries with Ofsted through 'show and tell' reviews with Users and internal retrospectives. Texuna also continue to collaborate with GDS staff on the DfE/GIAS (Edubase2) redevelopment in an agile approach across GDS gateway reviews.	91	Not shortlisted	1 point (3 max)	No evidence of changing practices or upskilling, example relates to basic reviews and retros.
Ofsted	Inspection Reports as web content	Understanding of the education, childcare and social care landscape in England. (Within the last 2 years).	The Ofsted Fostering Data Collection project was launched successfully in May 2018, a national data collection that documents the fostering capacity and children in the care of fostering agencies. The non-digital service used manual operations that caused issues with data quality and reduced overall user-satisfaction. Texuna delivered a digital service that streamlines all steps in data submission: data collection, validation, immediate data quality reporting and sign-off. Ofsted administrators now manage data through a back-office portal. We received excellent written feedback from Ofsted and end users. Texuna also work with Universities, Schools, DfE, OfS, NCTL, STA.	95	Not shortlisted	Nice-to-have skills or experience	
Ofsted	Inspection Reports as web content	Experience of conducting user research with staff in an organisation where the workforce is very front line heavy. (Within the last 2 years).	Texuna publish the National Student Survey results with the Office for Students, providing an analysis tool for thousands of end-users to report their own data against the sector. Annually, we test analytics internally with Ipsos Mori and OfS staff, as well as engage with the Higher Education sector and National Union of Students. The service is well received with user workgroups providing suggestions for improvement. For Jisc in 2016 & 2017 Texuna conducted a huge enterprise data warehouse discovery phase looking at all staff needs at regional and national levels, as well as across business unit divisions.	97	Not shortlisted	Nice-to-have skills or experience	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Office for Students (HEFCE)	Discovery for a resource	Have experience of delivering digital services using an agile team and meeting the Digital Service Standard	Texuna delivered Ofsted Fostering Data Collection in 2017-2018 using agile methodology and the GDS Alpha Service Standard. Ofsted "Setting Goals" workshops engaged users with 'show-me don't tell-me' sessions to empathize with their methods and motivations, and test our assumptions. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. We delivered user stories into a backlog, created risk register during Alpha and delivered Beta system on GDS FrontEnd libraries. Likewise Texuna worked with a GDS team for DfE GIAS/Edubase replacement in 2016-2017, passing GDS Service Assessment.	99	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Have experience of carrying out user research and of user-centred design of digital services that meet identified user needs and business objectives	Texuna combines evidence gathered in workshops with user survey feedback to inform desired user behaviours and outcomes. We combine GDS standards and best practices with design thinking and user journey mapping. We work with Indeemo.com, a qualitative research video startup which combines User Research tools with User recruitment, to solicit participation and feedback on product design and to inform on user experience/usability. We combine this user-led approach with rapid prototyping of increasing fidelity to deliver composite videos of prototype versions. We make regular demonstrations of updates to real users and solicit feedback. We iterate continuously toward the final solution.	99	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Have experience of designing services which experience present complex datasets to users with varying levels of knowledge of and interest in statistical information	Texuna manages big datasets in our data warehouse projects with Jisc, Oxford Brookes and London Metropolitan University. We also publish statutory reports for 15+ years with NCTL, and disseminate the National Student Survey results. We provide custom and COTS analysis tools for end-users to report their own and sector data, and strongly support self-service by being mindful of each user groups capabilities. We manipulate the data on statistics and volume (e.g. masking rules to secure personally identifiable data). Our bespoke tools are well received by the sector and we constantly revisit ideas for improvement through user workgroups when permitted.	99	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Have experience of business case development	Texuna has 18+ years of project experience to solve business problems. Our 15+ years in Education gives us sector expertise. With Jisc 2016-17 - we reviewed and delivered on a business case for almost £2 million budget Enterprise Data Warehouse. For each major project we investigate suitable COTS, cloud services and open source libraries, not afraid to build and borrow and integrate software and microservices to create high performance, scalable and functional services. We closely monitor GDS standards and best practices to deliver creative, innovative, high quality and value-for-money solutions that users really appreciate.	94	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Have experience of working with in-house teams with limited Agile knowledge	Texuna worked onsite with Jisc in Bristol in 2016-17, helping establish a data warehouse team, a governance process and an agile methodology. Implementation included Jisc staff from kickoff ensuring self-sufficiency after handover. All levels and roles were engaged to build awareness and understanding of user-led projects in an agile way. Texuna acted as an extension of the in-house client team helping to build internal competence and capability. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives.	99	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Show understanding of student data and HE information	OfS National Student Survey aside, Texuna work with student, HE and schools data for many clients: DfE GIAS/Edubase, DfE Secure Access, STA ItemBank, NCTL Performance Profiles and NQT survey, Jisc Enterprise Data Warehouse and member services, HESA returns and DLHE data. For HEIs, Texuna currently work with University College Cork, Oxford Brookes University and London Metropolitan University. We help them manage and analyze student data from admissions, UCAS clearing, enrolment, attendance, participation, attainment, and destinations after graduation, compare UNISTATS data, do curriculum management and work placement data management. Texuna is also the largest investor in Alison.com with 12+M learners.	99	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Show evidence of carrying out user research with school age users and/or teachers	Texuna work with OfS and NUS to engage students at HE level, with NCTL to engage with teachers at schools in data returns and to deliver GTP applications for PGCEs before it migrated to UCAS. We are engaged with UCC students to design a University work placement system. Our partner Indeemo has worked with clients such as the University of East London, University of Southern California, University of Tampere and Cengage Learning on longitudinal diary study and mobile ethnography and qualitative user research. Our visual design thinking, empathy building and "show-not-tell" philosophy suits all audiences.	95	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Show experience of working with 'hard to reach' users	Our partner Indeemo.com has reached thousands of user segments through their mobile qualitative research platform. They have worked with hard to reach target audiences such as patients with medical conditions, commuters with accessibility requirements and consultant audiologists in countries such as Argentina and China. They can help with research panel selection and participant recruitment. We can also learn from DfE experiences on how to engage more effectively through gamification: https://dfedigital.blog.gov.uk/2017/12/15/making-a-game-to-understand-post-16-choice-behaviour/ A similar approach to understanding pupils' behaviours in the face of complex decisions can be used alongside Indeemo's reach and process will help create a better product and service.	99	Not shortlisted	Not requested	
Office for Students (HEFCE)	Discovery for a resource	Show experience of service redesign	At Ofsted, Texuna delivered the first online Fostering Data Collection service in Q1 2018. We collaborated on the redesign according to GDS guidelines. The old service used manual operations. Texuna combined user research with our own understanding of running data collections on behalf of NCTL for 15+ years to imagine what a new cloud digital service could look like, building out User Journeys from paper, scripted demos and working prototypes. The digital service now streamlines all steps in data submission with a back-office management portal. We received amazing written feedback from Ofsted and end users on the new service.	99	Not shortlisted	Not requested	
UK SBS	Primary Authority Register Beta	Demonstrate how you will apply your skills and expertise to...	Texuna, established in 2000, are a company who specialise in data management solutions. We have a strong track record of successful project delivery to the Education sector and particularly to the Department for Education and government agencies. We value a transparent partnership approach with our clients and we can provide case studies and references for our work. Our data registry and master data management product is on G Cloud-8 at: https://www.digitalmarketplace.service.gov.uk/g-cloud/services/566050089853092 We have the skills and expertise to deliver this project as demonstrated in our response below.	87	Were invited in 2nd round	Not requested	
UK SBS	Primary Authority Register Beta	deliver digital services that meet the GDS Digital Service Standard criteria and pass GDS service assessments and how this will ensure the successful delivery of this project	Texuna collaborate with GDS on the DfE Edubase replacement to pragmatically assure deliveries and successes. We have worked with Digital by Default and Digital Service Standards for many successful public sector projects. Our startups and consumer apps bring 100% user-centered and rapidly-prototyped agile approach to our deliveries. E.g. Indeemo.com is a qualitative research selfie video startup which we can use to research UI and UX. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We have used open source software components extensively for over a decade with extensive data and dashboard reporting expertise.	97	Were invited in 2nd round	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
UK SBS	Primary Authority Register Beta	assess legacy systems, develop migration strategies and migrate data to new digital services and how this will ensure the successful delivery of this project	Texuna work with ETL tools and Data Warehouses (e.g. Jisc - assessing, integrating and migrating 140+ feeds into a conformed enterprise data model, as well as re-supplying customer-oriented data through a new 'MyJisc' portal). We have extensive integration and API experience (E.g.Edubase) as well as migrating data from historic sytems of record to new cloud-based replacement systems. Replacement systems are often bespoke in nature, so during migration we build test straps that SQL-based sanity checks to ensure that replicated data that is migrated is absolutely assured to be identical to original source data irrespective of format or schema.	98	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	develop prototypes (wire frames/coded prototypes/etc.) iteratively via user testing/research and how this will ensure the successful delivery of this project	Texuna have worked with GDS team in an interative style to join front end prototypes with backend systems via pre-specified API definitions. Texuna also have agile prototpying experience with startup companies in the B2C space on video, mobile, and web technologies. These rely heavily on regular prototpying and continuous integration and deployment of code to shared repositories to ensure real customers and end users can give immediate feedback on the UI/UX and customer journey. Texuna has worked with tools such as Balsamiq, GetArbor, InvisionApp, Pressie etc. to construct quick wireframes and elicit feedback across stakeholders, providing evidence to inform UI/UX.	100	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	develop digital services using agile methodologies and how this will ensure the successful delivery of this project	Texuna have worked with the agile methodology for sprints and for project management over the last 3 years, coverting a previously waterfall style with tradtional tools to an interactive, shared development methodology with visual tools and workgroup techniques. Texuna work with modern collaboration tools and development workflows including Pivotal Tracker and Slack, and have a fully continuous integration and deployment approach working with cloud based and software defined infrastructure and networks. We use daily standups and scrums to collaborate across teams and locations and we do 'show me, don't tell me' presentations at sprint ends for feedback and lessons-learned retrospectives.	100	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	develop production ready code for private/public Beta releases from Discovery and Alpha outputs (e.g. low-fi/hi-fi prototypes) and how this will ensure the successful delivery of this project	Texuna use test driven development from the very begining of projects to set early baselines for deployable code. We automatically run regression testing against all commits that are integrated and releases for deployment to dev/test/prod environments. This happens from the earliest code versions and test versions typically managed through GIT, with unit and integration tests included in the test suite. We can put this rigour in place to wrap up discovery or alpha code and ready it for continuous deployment with high confidence. All bugs are managed in a formal ticketing process and lessons learned incorporated into automated tests.	99	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	prioritise key content and features using metrics, analytics, and user feedback and how this will ensure the successful delivery of this project	Early on we engage multiple stakeholders with 'show me don't tell me' artefacts to capture and measure real feedback on wireframes. We use Indeemo.com mobile-based qualitiative analysis videos to monitor user behaviour when using alpha apps in real life with a bigger audience. We talk to users and build empathy to understand their methods and motivations, and test our assumptions so feedback can be evidenced. Texuna use click analysis and google analytics to ensure that usage patterns and behaviour can be used to collect evidence to inform customer journey decisions once beta releases are in production.	96	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	prioritise product and programme delivery using effective estimation and sizing techniques and how this will ensure the successful delivery of this project	Texuna have 17 years experience in estimating and building complex projects and programmes of work to deliver fixed-price workstreams. We have combined this experience with agile effort and complexity estimations using the t-shirt sizing approach combined with User Story Points system to manage project workloads for just-in-time priority-drive backlogs for product owners and product champions. We have also worked in multi-vendor teams and multi-stack technologies and are comfortable judging the added complexity this entails so that it is accounted for in delivering a broad programme of change management over extended periods.	91	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	design and build services which meet user needs, follow GDS design patterns, and meet accessibility standards and how this will ensure the successful delivery of this project	Having worked in central government public sector for over 12 years Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. For example, early versions of the task list pattern were used in by NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life Long Learning UK. All Texuna user facing deployments are at least WC3 AA level accessible and have been independently tested and verified.	96	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	use automated (testing) environments and implement continuous integration, delivery & deployment and how this will ensure the successful delivery of this project	Having worked in central government public sector for over 12 years Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. For example, early versions of the task list pattern were used in by NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life Long Learning UK. All Texuna user facing deployments are at least WC3 AA level accessible and have been independently tested and verified.	96	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	implement 3rd party APIs and how this will ensure the successful delivery of this project	Texuna have worked with GDS secifications over the last 6 months to deliver a fully functioning API to join back end systems with a new front end that is aligned with GDS design patterns and standard.

Texuna specialises in REST API endpoints. We use YAML-based documentation to automate code generation in a language independent way. This streamlines development with well formatted documentation and test stubs provided through Swagger. Simplfied integration code and automatic test scripting gives high quality assurance long term over the REST API. Perfomance and penetration testing of REST API guarantees security and avaliablity of live services. | 99 | **Were invited in 2nd round** | **Not requested** | |
UK SBS	Primary Authority Register Beta	Demonstrate how you will apply your skills and expertise to...	Texuna will assign a technical team to this project and will follow standard methodology including Prince2 project management and Agile delivery.	21	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	deliver digital services from Discovery to Live, involving retirement of legacy services and how this will ensure the successful delivery of this project	With deep experience linking authentication and access control systems and legacy systems/databases, Texuna is expert in joining fast moving end user expectations with more slowly responding legacy backends. We also use tools like Ansible/Terraform/Puppet to migrate to altenative infrastructure on AWS/Azure. We have managed Secure Access migration from private cloud (Eduserv) to AWS, and Edubase from colocation to Azure, working with multiple 3rd parties with zero downtime. Pre-planning migration data quality and sanity checks are put in place to ensure that legacy data behaves as expected before and after redeployment. We have also migrated database stacks and upgrade software versions.	100	**Were invited in 2nd round**	**Not requested**	
UK SBS	Primary Authority Register Beta	upskill client staff and how this will ensure the successful delivery of this project	Texuna often work with public sector first-timers to migrate them to agile-driven, user-focused and priority-driven project management, requirements prototyping and sprinting code deployement. We work collaboratively in-loco and on an open book basis so they have full visibility and opportunity to participate in code development, testing, deployment and operation. Our specialised handover workshops with small teams assure knowledge and understanding is transferred and verified. We provide sufficient video and wiki documentation to ensure a level of self-sufficiency is left with client staff. Open standards and OSS help ensure sustainability long term, and Texuna can also provide support services with SLA.	100	**Were invited in 2nd round**	**Not requested**	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Public Health England	ARSAC Information System	Recent and demonstrable experience of introducing Transactional services on GOV.UK	Texuna develops and has managed the GIAS solution (https://get-information-schools.service.gov.uk/) since 2008. EduBase was reengineered and relaunched with GDS in September 2017 as GIAS. Texuna provides the database, validations, capabilities, access control and performance. GIAS is a high transaction system achieving over 1000 concurrent sessions at peak. Department stakeholders, schools and the public have access via a sophisticated access control system. Texuna's NCTL solution collects data on teacher training students (https://dataprovision.education.gov.uk/nctldms) supports in excess of 1000 concurrent accesses at peak collection times. It is a key source for reports, parliamentary questions and policy on teacher training.	95	Were invited in 2nd round	Not mentioned	The PHE project team felt there was a reasonable response to the approach of delivering a digital service but more detail could have been provided on the regulatory requirements. They thought you demonstrated a good understanding of GDPR, provided a clear description of the methodology during discovery and that the case studies you provided were relevant and good. However, they thought that the approach to stakeholder engagement and management could have been more flexible.
Public Health England	ARSAC Information System	Recent and demonstrable experience of delivering digital projects to meet statutory requirements.	Texuna develops and manages the EduBase solution (https://get-information-schools.service.gov.uk/) since 2008. EduBase was reengineered and relaunched with GDS in September 2017. Texuna provides the database, validations, capabilities, access control and performance. EduBase is a high transaction system achieving over 1000 concurrent sessions at peak. Department stakeholders, schools and the public have access via a sophisticated access control system. Texuna's NCTL solution collects data on teacher training students (https://dataprovision.education.gov.uk/nctldms) supports in excess of 1000 concurrent accesses at peak collection times. It is a key source for reports, parliamentary questions and policy on teacher training.	92	Were invited in 2nd round	Not mentioned	
Public Health England	ARSAC Information System	Recent and demonstrable experience of digital systems that take input and subject this to both automated and manual validation.	Our data quality and integrity focus validates across multiple levels - data field, field combination, record and database. We improve quality by real-time prompts, help text and by automated checks on dataload or against third party reference sources. Our enterprise data warehouse for Jisc merges data from over 100 source system feeds, verifies data against governance standards to maintain quality and creates a master daya record using a priority hierarchy so that the most trusted source takes precedent in case of conflict. A full audit trail and error report ensures traceability and flags any need for changed processes.	98	Were invited in 2nd round	Not mentioned	
Public Health England	ARSAC Information System	Recent and demonstrable experience of assessing the suitability of G-Cloud and other systems for public sector applications.	Texuna adhere to the Digital by Default standard for build and implementation, having used GDS patterns and libraries across projects at front-end and backend. As open source software experts we support open standards. Being vendor agnostic we select the most appropriate tools for the task and ensure clients have future portability options to avoid lock-in. We have already worked with GDS to implement gov.uk services. Our approach is to integrate standard open source tools for rapid and effective development and delivery. This will include the gov.uk tools Notify, Verify and Pay. We regularly work with PostgreSQL.	96	Were invited in 2nd round	Not mentioned	
Public Health England	ARSAC Information System	Recent and demonstrable experience of designing systems to manage personally identifying information under the General Data Protection Regulation (GDPR).	Our Access and Authentication solution at DfE provides a Single Sign-On gateway to 11 separate systems via SAML, including the National Pupil Database. The centralised management interface allows users to be identified and controlled easily and once only to streamline GDPR processes and to limit personal information access. The Jisc data warehouse required the development of data classification and sophisticated obfuscation routines to manage data movement between dev/uat/production environments, with all sensitive data encrypted at rest. We are delivering the EPIDOS solution to securely store sensitive medical records for Radiography Epidemiology at PHE.	93	Were invited in 2nd round	Not mentioned	
Public Health England	ARSAC Information System	Recent and demonstrable experience of meeting the GDS Service Standard.	Texuna collaborate with GDS on the DfE Edubase replacement to pragmatically assure deliveries and successes. We have worked with Digital by Default and Digital Service Standards for many successful public sector projects. Our startups and consumer apps bring 100% user-centered and rapidly-prototyped agile approach to our deliveries. E.g. Indeemo.com; a qualitative research selfie video startup to research UI and UX. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We use open source software components extensively for over a decade. We partner with our clients to ensure stakeholders are fully involved and informed throughout the project.	100	Were invited in 2nd round	Not mentioned	
Public Health England	ARSAC Information System	Experience of healthcare organisations	Texuna work with PHE to deliver the EPIDOS database to hold exposure to nuclear materials and patient record information. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, buisness process management and extensive input and output validation. Complex data feed manipulation via reprogrammable java script functions to manage data feeds for the 50+ year old radiology epidemiology datasets. Aggregated data reporting and data anonymisation for sharing is supported. Prior to NPfIT Texuna installed EPR systems to PCTs.	97	Were invited in 2nd round	Not mentioned	
Public Health England	ARSAC Information System	Experience of working with public sector organisations such as central and / or local government	Having worked in central government public sector for over 12 years Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. For example, early versions of the task list pattern were used in by NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life Long Learning UK. All Texuna pubic sector implementations have passed gateway standards reviews and deemed fit-for-purpose.	90	Were invited in 2nd round	Not mentioned	
DfE	Digital Service Transformation Pipeline Delivery Programme	Clear evidence of planning and delivering user-centred digital services that follow the Government Service Manual, corresponding service assessment process, and Technology Code of Practice	Our projects with GDS/GIAS (Edubase2 transition) and with Ofsted follow the Technology Code of Practice and digital service standard, working with design patterns and accessibility standards through GDS FrontEnd libraries. Texuna use a design-thinking approach through a user-centered multi-stage problem-solving process that requires designers to empathize with and foresee how different users respond to proposed designs. For Ofsted we iterated prototyped screens that were user-tested regularly during Alpha before entering formalised agile delivery and UAT during beta. We worked with groups of users to determine specific needs and issues. We maintain ISO standards for quality, information security and service delivery.	99	Not shortlisted	Not requested	
DfE	Digital Service Transformation Pipeline Delivery Programme	Clear evidence of delivering digital services using agile development approaches and continuous delivery techniques	Texuna improve agility using several methods. Design thinking and Lean methods ensure Discovery and subsequent phases are user-led and evidence-based, with feedback to inform User Journey mapping and User Stories. We use Scrum for managing structured delivery schedules with clear named roles and a groomed backlog. We use Kanban techniques to visually manage progress and flow and to transition to a DevOps Live phase of operation. We applied these techniques with Jisc in 2016/7 and GDS/DfE on GIAS. Continuous Integration and Continuous Delivery is done via Visual Studio, Team Services CI/CD and Azure cloud services, automated unit testing and deployment.	100	Not shortlisted	Not requested	
DfE	Digital Service Transformation Pipeline Delivery Programme	Experience in conducting user research, designing and developing working digital services, user journey mapping, delivering evidenced, prioritised user stories and designing assisted digital support	Texuna work with DfE through Visual Studio Team Services to document GIAS user stories, define features and model workflows during Discovery/Alpha/Beta phases. Alpha work with Ofsted tested assumptions with low fidelity people-based journey maps, moving to replicate journeys on Balsamiq prototypes, with backlog of user stories. Texuna use Indeemo to provide qualitative research tracking of user behaviour and experiences across an audience of remote real world users. This informs and improves user experience by testing different scenarios by observation, not limited to questionnaires (think Instagram videos with task list). Accessibility is tested with the GDS recommended toolsets.	97	Not shortlisted	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Digital Service Transformation Pipeline Delivery Programme	Experience of successful collaborative working, coaching and sharing knowledge with Public Sector client teams, particularly those with limited agile development experience	Texuna work collaboratively on an open book basis as an extension of the client team to build internal competence and capability. We use existing project and collaboration tools to minimize friction and maximize knowledge transfer, or introduce alternatives if necessary. In Jisc in 2016-2017 we worked onsite alongside Jisc staff, transferring skills, mentoring and coaching daily across multiple locations. For SecureAccess we formalize change management and are present at Project Board and Change Board level. For NCTL and OfS(NSS) projects we provide end-user training, tutorial videos and user workshops to promote uptake and identify and resolve improvement suggestions.	98	Not shortlisted	Not requested	
DfE	Digital Service Transformation Pipeline Delivery Programme	Ability to provide core team roles, to supplement our existing capability, including delivery managers, user researchers, service designers and business analysts	Texuna provide continuity through full-time employees. Our core team is London-based, with additional resources available from our Cork office on a project basis - and we place resources onsite for project duration. We also partner with agencies and can deploy resources fulltime in Manchester and Coventry, including: - Delivery Managers to assure successes - Project Managers and scrum masters to manage performance - Product and Service Managers to manage user priorities and assure outcomes - User Designer to coordinate user research and implement feedback - Business Analysts and User Researchers to map user journeys, create user stories, test prototypes and curate backlog	102	Not shortlisted	Not requested	
DfE	Digital Service Transformation Pipeline Delivery Programme	Experience of working successfully with UK Government and/or Arms Length Bodies	Texuna have 15+ years experience in public sector and government managing sensitive data including: * ITTDMS for the NCTL * Fostering collection of Ofsted * EduBase2 /GIAS at DfE * NSS results site for OfS * SA Identity and Access Management solution at DfE * EDW solution for Jisc * Data Warehouse services for Oxford Brookes University and London Metropolitan University * Historical EPIDOS patient records migration with PHE Texuna manage data and publish statutory reports for our public sector clients. Texuna offices are audited by BSI for ISO9001, 20000 and 27001 certifications without exclusions to give the highest level of assurance.	102	Not shortlisted	Not requested	
DfE	Digital Service Transformation Pipeline Delivery Programme	A demonstratable track record of successfully passing GDS service assessments	Texuna has worked with the Department for Education for many years to successfully pass needed reviews, external penetration testing, risk and security assessments. These resulted in successful approval for live running for the SA Access and Authentication solution for the Department and the EduBase2 launch and live running. EduBase2 is now replaced with GIAS and we work with the Department to improve it in the build-up to the next GDS service assessment. Texuna is committed to provision of high-quality solutions and service and we are certified by BSI for security, quality and service standards and hold cyber essentials.	98	Not shortlisted	Not requested	
DfE	Digital Service Transformation Pipeline Delivery Programme	Ability to provide experienced agile product managers to support projects if required for the statement of work	Texuna work with startup companies that are hyper-agile and super product-focused. As their technology partner we help formalise their approach and help them prioritise feature scope creep by teaching them to put users first. In the public sector, as the service owner and operator for the DfE/NCTL data collection and performance profiles publication Texuna have developed deep expertise at applying automation and improvement to digital services in the public sector. Texuna therefore have several competent roles available: - Product and Service Managers - Technical Architects - Front end and full stack developers - QA/tester - Dev/Ops and SysAdmin	98	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Experience of delivering end-to-end hosted digital services including development of website integration with CRM/Case management and customer service process function and set-up and configuration in a circa 6 month development	Texuna are big data integration and cloud specialists. We integrate Dynamics, Salesforce, SAP, Sage, SITS, SIMS, Unit4, Sharepoint, various CMS and storage systems via ETL and ESB. Our specialists range from frontend Single Page Applications to backend SaaS, EDW, case management and CRM systems. At the DfE our SecureAccess solution for authentication and access management uses SSO SAML to link bespoke DfE services. Other enterprise clients include Jisc and several Universities. Typical implementation timeboxes range from 3-6 months, with several multi-year projects. We collect and publish statutory returns as well as disseminate student survey results.	95	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Demonstrable experience of recommending and implementing sustainable and GDS compliant technology and architecture choices for an end to end digital service	We use cloud technology and open source software extensively for over a decade, with an agile approach and DevOps style Continuous Integration and Continuous Delivery. We comply to Digital by Default and Digital Service Standards when we work with our existing public sector clients like PHE, DfE, Ofsted, NCTL, STA, OfS. We use open source including GDS toolkits and libraries to deliver end-to-end enterprise solutions. Texuna collaborate with GDS on the DfE GIAS (ex-Edubase) service. We have delivered to the DfE Azure platform, and run extensive SaaS on AWS. We partner with clients and GDS to optimise solution architecture.	99	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Demonstrable experience of working as a joint team with commissioning organisation and operating within its governance	For example, Texuna colocated onsite with Jisc for over 2 years to collaboratively deliver a greenfield Enterprise Data Warehouse. All levels and roles were engaged including: business know-how, stakeholder engagement, technical coding and efficient handover of source-code and cloud devops. Texuna's transparent partnership approach focuses on high-level quality technical documentation to support handover and on-the-job training. Project signoff gateways ensured staff is engaged in design and implementation. Texuna acts as an extension of the client team to build internal competence and capability. We work with clients preferred project and collaboration tools to minimize friction and maximize knowledge transfer.	98	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Experience of delivery including Agile to GDS principles and standards	Texuna implement the 18 GDS delivery principles since 2014. For example we have worked with Digital by Default and Digital Service Standards jointly with GDS and DfE on the Get Information About Schools project to pragmatically assure deliveries and gateway review successes. Our web-based Ofsted Fostering Data Collection went live in May 2018, based on user-centered and rapidly-prototyped agile sprints and iterative delivery reviews with internal stakeholders and external endusers. Our multidisciplinary team ranges from user research to security, privacy and penetration testing, such as agile migration of data to cloud based data warehouse and Business Intelligence for Jisc.	99	Not shortlisted	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Social Work England (SWE)	End to end digital service	Demonstrable experience of rapid and iterative user research and user experience activities including for users with accessibility and assisted digital needs	Texuna combines workshop-based evidence with user surveys to broaden coverage of user behaviours and desired outcomes. We combine GDS standards with design-thinking and user journey mapping. We work with Indeemo.com, a qualitative research video startup which combines User Research tools with User recruitment to solicit participation, feedback on product design and to inform on user experience and usability. We combine this user-led approach with rapid prototyping of increasing fidelity to deliver composite videos of prototype versions. We iterate continuously with regular demonstrations to real users and solicit feedback, using specialist tools to simulate accessibility issues to keep designs inclusive.	99	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Demonstrable experience of producing engaging content that meets user needs	Texuna actively works with a small number of lean startups to deliver websites with engaging content that is continuously refined by building user empathy and testing alternative scenarios in a scalable way. We have taken the lessons learned to our public sector projects such as Ofsted, establishing research with internal and end users to determine what user experience, design and content really helps the user understand their journey and achieve their desired outcomes. Our projects are successful because we engage end users directly and implement changes iteratively based on their feedback and stated business needs.	95	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Demonstrable experience of transfer of data and service from another organisation	Texuna's Jisc warehouse integrated data from 3 different merged organisations. Our ETL approach migrated and/or integrated over 140 distinct datastreams comprising billions of records without performance impact on legacy sources. Sources included databases (with and without API's), flat files, email-based data and cloud SaaS data. Texuna manages 10 collections annually from training providers for DfE Teacher Training. We include external sources like HESA or QTSI to enrich the data. We have worked on Big Data projects where Change Data Capture isn't available at source. We use data matching and cleansing expertise to improve data quality with full audit and traceability.	100	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Experience of integrating systems in a secure, and efficient way, using appropriate architectural patterns and technology to ensure systems are loosely coupled and performant	Texuna is a data and system integrator with cloud message queue, ESB and ETL experience: DfE SA, authentication and access management with SSO to over 10 highly secure systems. DfE (ex-NCTL). 20 datasets integrated using SOAP and Restful web-services, maintaining high quality via validation rules and dependency checks. DfE GIAS, validation workflow to automate school open and close dates used to populate the official school data register. Jisc, integrated data systems in a heterogeneous cloud (public/in-house/proprietary SaaS like Salesforce). We analysed, integrated and migrated 140+ feeds into a conformed enterprise data model, and re-supplied customer-oriented data through a new 'MyJisc' member portal.	102	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Experience of design and delivery of an end to solution using modern industry standard technical patterns and practices	Texuna adhere to the Digital by Default standard for build and implementation, having used GDS patterns and libraries across projects at front-end and back-end. As open source software experts we support open standards. Being vendor agnostic we select the most appropriate tools for the task and ensure clients have future portability options to avoid lock-in. We have already worked with GDS to implement gov.uk services. We constantly review published patterns and best practices from GDS and industry thought-leaders and reuse existing tools, libraries and guidance such as Digital Frontend, Notify, Verify and Pay.	93	Not shortlisted	Not requested	
Social Work England (SWE)	End to end digital service	Demonstrable experience of working and delivering with regulators and health and social care organisations	Texuna currently work with PHE to deliver the EPIDOS database to hold exposure to nuclear materials and patient record information. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, business process management and extensive input and output validation. Complex data feed manipulation via reprogrammable javascript functions to manage data feeds for the 50+-year-old radiology epidemiology datasets. Aggregated data reporting and data anonymization for sharing are supported. Prior to NPfIT Texuna installed EPR systems to PCTs.	95	Not shortlisted	Not requested	
DfE	National Pupil Database Access (Safe Settings)	Proven track record of optimising databases to support operational practice & developing authentication schemes from personal data.	Texuna deliver high-performance high availability solutions for government and DfE. Secure Access is a clustered identity solution for Single Sign-On. It uses salting and hashing for password-based authentication which is segregated from personal data used for access permissions. Built on open source it supports multifactor authentication. The cluster is cloud-agnostic and portable. We work with GDS partners to ensure maximum performance for GIAS on Azure including Redis caching, queues and database services. For OfS NSS we disseminate survey results to all universities on a highly optimised cloud data warehouse to support live queries against 10's of millions of records.	99	Not shortlisted	Not requested	
DfE	National Pupil Database Access (Safe Settings)	Experience of passing either internal DfE or Government Digital Service service assessments	Texuna works with the Department for Education and successfully passed many needed reviews, external penetration testing, risk and security assessments. These resulted in successful approval for live running for the SA Access and Authentication solution for the Department and the EduBase2 launch and live running. EduBase2 is now replaced with GIAS and we work with the Department to improve it in the build-up to the next GDS service assessment. Texuna worked with Ofsted on the Fostering data collection service subject to GDS approval. Texuna is certified by BSI for security, quality and service standards and hold cyber essentials.	98	Not shortlisted	Not requested	
DfE	National Pupil Database Access (Safe Settings)	Work in Agile ways and be prepared to share their Agile experience across the wider DfE community	Texuna upskilled client staff by working on-site in projects like Jisc, Ofsted, and University clients. Texuna delivered these projects by adopting daily standups, bi-weekly sprints with show/tell demos and retrospectives, identifying formal roles (project sponsor, project champion, product owner, scrum master) to structure projects. We use the client's collaborative tools to improve transparency and eliminate friction. We also maintain our processes under BSI ISO9001, ISO20000 and ISO27001 through mixed agile methods from Lean Startup, Scrum and Kanban (learned from our startup investments) alongside contractual Prince2 gateways (learned in the public sector). At Jisc we delivered formal training on methods.	99	Not shortlisted	Not requested	
DfE	National Pupil Database Access (Safe Settings)	Experience of working with, and analysing, .SAV files (MS SQL)	Texuna process and analyze SPSS .SAV files by loading them into standard RDBMS (MS SQLServer or PostgreSQL). For SQLServer we use OLEDB connectors. We also convert SAV files to CSV using GNU PSPP for PostgreSQL or analytical columnar databases on Azure and AWS. For example at MSB, Texuna migrated functionality from KeySurvey and SPSS to cloud-based reporting through QlikSense for Bupa patient feedback surveys. Texuna used serverless functions and queue triggers to automate the workflow. At DfE, the Teacher Training data collection service has grown to support multiple collections and datasets on SQLServer/APS over 15 years.	96	Not shortlisted	Not requested	
DfE	National Pupil Database Access (Safe Settings)	Have experience and understanding of the National Pupil Database	Texuna deliver the DfE SA Access and Authentication solution at DfE provides a Single Sign-On gateway to 11 separate systems via SAML, including the National Pupil Database. Texuna historically took aggregate census data regularly from NPD for Edubase2 school data publication. Today Texuna work with pupil data for Edukit (collecting pupil premium and performance from UK SIMS data and process the Wellbeing Insights survey).	64	Not shortlisted	Not requested	

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DfE	National Pupil Database Access (Safe Settings)	Provide evidence of being able to scale quickly to meet the needs of the project	Texuna scaled a team at Jisc for a large data warehouse project from discovery to delivery and handover. The team grew from 5 analysts to 20 multi-disciplinary roles. Texuna has a mature track record with multiple offices and almost 40 employees. We resource projects with flexibility to deploy or re-assign resources, or augment the team or skills with sub-contract partners and freelancers. We plan resource deployments and engage in cross-training staff to upskill and to provide contingency /flexibility for clients. Education sector clients have predictable busy and quiet periods in the academic year, and we scale accordingly.	97	Not shortlisted	Not requested	
DfE	National Pupil Database Access (Safe Settings)	Have experience and understanding of DfE data (ideally the National Pupil Database)	Texuna already work with a range of DfE data from historic teacher training records (ITTDMS - 15+ years, and NQT Survey, HESA returns and DLHE data), LLUK/ESFA (SIR data from FE sector ILR collection), STA Itembank for SATs exams, and GIAS schools data. Texuna has also worked with HESA data, OfS NSS data as well as university data. Texuna currently help 2 different universities manage and analyse student data from admissions, UCAS clearing, enrolment, attendance, participation, attainment, and destinations after graduation, and compare UNISTATS data.	85	Not shortlisted	Not requested	
DfE	Multiplication Tables Check (MTC)	Examples of delivering high quality user orientated digital services with Agile project team practising Kanban. Meet Digital Service Standard/Tech Code of Practice, examples of successfully passed GDS Beta Service assessments	Texuna use lean methods to create user-led and evidence-based feedback to guide User Journeys and evolve User Stories. In public sector we use a mix of Scrum and Kanban methods to structure delivery schedules; agree named roles; groom the backlog of work; to visually manage progress; and to transition to DevOps. We applied these techniques with GDS/DfE on GIAS following the Technology Code of Practice and digital service standard. Continuous-Integration and Continuous-Delivery are done via Visual Studio, Team Services CI/CD and Azure cloud-services, with automated testing and deployment. GIAS/Edubase is in public beta awaiting Service Assessment for Live.	98	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Expertise in taking forward user research and usability testing to meet user needs to meet any set acceptance criteria (including assisted digital, users with access needs and accessibility audits)	We work with Indeemo.com to do qualitative research videos to scale user recruitment with user research and feedback collection on product design and user experience/usability. We work proactively to meet acceptance criteria agreed with the project team and based on user feedback. Accessibility is tested with the GDS recommended toolsets to at least WC3 AA level and independently tested. For Ofsted we delivered a public Fostering Data Collection service in Q1-2018 after conducting internal and provider user research. Texuna work from early low-fidelity prototypes, mockup wireframes and video prototypes all the way through to iterative continuous improvement on live services.	100	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Examples of in house expertise in developing production ready open source code for private/public Beta releases from Discovery and Alpha outputs (e.g. low-fi/hi-fi prototypes) and use of GitHub	Texuna start lean, building from low fidelity paper prototypes and wireframes to high fidelity video composites and interactive prototypes in Discovery and Alpha. We use behaviour driven development (Selenium Webdriver) from Alpha to set early baselines for deployable code. We automatically run regression testing against all commits that are continuously integrated and delivered to dev/test/prod environments. We test software prototypes and later iterations, all managed through GIT, with unit and integration tests in the test suite. All bugs are ticketed and lessons learned incorporated into automated tests. We use this approach with Jisc, University clients, Ofsted and DfE projects.	99	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Expertise in automated (testing) environments and implementing continuous integration, delivery & deployment using languages such as Ruby, Java Script, Typescript, Bash and SQL	We host on Azure and AWS cloud and use continuous development and continuous deployment to deliver services that adhere to GDS accessibility and usability standards. Texuna have staff with multiple tools and language skills. We work with DfE using Visual Studio Team Services. Texuna use Bash and Ansible to configure internal software server parameters, and Terraform to automate DevOps. We have a proven record of data warehouses heavily dependent on SQL. Developer and DevOps have deep knowledge of JavaScript and Typescript gained through delivery of Ofsted and CheckMate project based on Angular and NodeJS.	94	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Expertise, Target Architecture Design, Process and Operations Rationalisation, Design, Organisational Design. Proven experience in scale on demand, high performance web based applications, practical application of encryption ensuring secure online system	Texuna has 15+ years delivering public sector enterprise architecture. The DfE ITTDMS began in 2003 as a single data collection and grew to 10 annual collections seamlessly, where Texuna designed and ran the operational service. We delivered cloud queue and scalable serverless architecture for Ofsted and Edukit to collect data from foster homes and schools. For Department of Finance (Ireland) we delivered a containerised architecture to scale to 100TB unstructured data processing in-house. For Jisc data warehouse we designed a data classification and obfuscation scheme to manage data movement between environments. We designed DfE Secure Access for high-availability high-performance.	99	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Existing architecture is mature, we are not looking to make significant changes to this. Suppliers must demonstrate proven capability of development in these areas: NodeJS with SQL Server on Azure.	Texuna has migrated legacy solutions from hosted environments to cloud and leveraged cloud services provided by AWS and Azure clouds. E.g the DfE GIAS inhouse solution initially on SQLServer is now Azure cloud hosted. Our DfE Teacher Training data collection service has grown from a single data collection to support multiple collections and datasets on SQLServer/APS over 15 years. Texuna delivers in a number of programming languages and frameworks including Angular, NodeJS and Java, as well as a number of databases including SQLServer, PostgreS and MongoDB. We developed and delivered cloud-based NodeJS micro-services for Irish mobile app start-up CheckMate.	99	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Experience developing SPA's; check already modified, behaves differently to traditional web application ensuring Pupils are focused throughout the check and cannot accidentally navigate, many standard web browser features (refresh) disabled	Texuna delivered the Ofsted Fostering Data Collection web-based single page applications using the GDS Frontend toolkit. We implemented service-oriented architecture with an independent frontend SPA using open source and open standards. Texuna specialists have experience in development of UI for high quality high scalability data collection workflows (similar to the Multiplication Tables Checks) ensuring high quality and security of data. We have experience of blocking functions that distract user or may accidentally break navigation through the workflow. We also built a SIMS data collection and a wellbeing survey cloud infrastructure for UK primary and secondary school pupils.	97	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Examples of tamper proofing of browser data with encryption is also required in the response	Texuna uses the Web Cryptography API for a legal eDisclosure web-application delivered according to GDS guidelines for Dept of Finance (Ireland). The application uses a public key deployed internally in the application to verify the integrity of the locally stored data in the browser cache (to improve usability, responsiveness and remember session states). The Web Crypto API provides functions to verify that data has not been tampered with by a rogue third-party. The API is promoted by W3C and supported by modern web and mobile browsers to improve the security of web applications by seamlessly enabling usable cryptographic functions.	99	Were invited in 2nd round	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Multiplication Tables Check (MTC)	Supplier must show competence how browser features, speech synthesis, leveraged to assist children with special needs; including special needs users using Apple devices (IOS) ,platforms Windows [7 and up], Linux.	Texuna thinks about accessibility from the start and delivers digital services that as a minimum meets level AA of the Web Content Accessibility Guidelines 2.0 (WCAG 2.0) and work on the most common assistive technologies: screen readers or speech recognition software. Texuna has experience with ARIA features to improve accessibility where appropriate. We test digital services under various scenarios: CSS is turned off, functionality is keyboard accessible, non-text content has text alternatives, functionality is usable without JavaScript wherever possible. We use auditing tools and test with actual screenreaders like VoiceOver (VO) for Mac/iPhone/iPad and similar tools for Windows and Linux.	99	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Demonstrate experience of managing, proactively engaging diverse range of internal/ external (public sector) stakeholders, building relationships to support digital transformation, the efficient and effective delivery of digitally enabled public services	We have 15+ years experience engaging public sector stakeholders building empathy in visual design-thinking workshops to deliver successful projects. Non-technical staff participate in interviews, 'show-and-tell' sessions and prioritisation workshops to identify and confirm problems and priorities. At DfE we work with third-party system suppliers to integrate 10 large mission-critical systems through our SSO Identity and Access Management system. Requiring timely engagement and effective communication via Stakeholder maps, communication and quality plans and timely progress reporting. For Office for Students, over 5 years, we have engaged directly with institution end-users via a portal and workshops to elicit and confirm enhancements.	99	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Demonstrate experience of designing and delivering an online platform and/or digitally-enabled service	Texuna have been delivering online platforms since 2000, aligning with Cabinate Office and GDS principles from earliest days. We designed the ITTDMS (TTA-TDA-NCTL-DfE) from a floppy disk survey to a fully automated online collection and publication service in 2003. Texuna operated and maintained the service as it grew 10 fold over 15 years. We have designed large online platforms for startups and public sector clients to scale from thousands of users, millions of records and terabytes of data. Texuna implemented the first cloud data warehouses in the UK education sector for Jisc, Oxford Brookes and London Metropolitan universities.	98	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Demonstrate experience of delivering national services for UK government departments and/or public bodies	Texuna has been a supplier to Government bodies since 2003 we have developed and currently manage the following services for Central Government: * Initial Teacher Training Database Management system for the DfE (NCTL) * EduBase database of educational establishments for the Department for Education * National Students Survey results site for OfS * Secure Access Identity and Access Management solution for the Department for Education * Ofsted Fostering Data Collection system * Item Bank system for STA * Enterprise Data warehouse solution for JISC Texuna also ran the LLUK SIR collection for the FE / ACL sector in the past.	100	Were invited in 2nd round	Not requested	
DfE	Multiplication Tables Check (MTC)	Demonstrate knowledge and experience of working in the English state schools/statutory education sector	Texuna also work with pupil and student data for HEIs and schools for many clients including: Edukit (pupil premium and performance from SIMS data, and the Wellbeing Insights survey), Performance Profiles and NQT survey (ITTDMS), HESA returns and DLHE data, EduBase database of educational establishments for the Department for Education and National Students Survey results site for OfS (OfS). Texuna work under the oversight of HESA and OfS when dealing with higher education sector data on behalf of universities. Texuna work with Oxford Brookes University and London Metropolitan University to deliver the Higher Education Data Warehouse service.	97	Were invited in 2nd round	Not requested	
DfE	Service design for Schools Digital Platform	Work to GDS service standards.	Texuna natively understand the 18 GDS delivery principles. We worked with Digital-by-Default and Digital Service Standards jointly with GDS and DfE on the Get Information About Schools project to pragmatically assure deliveries and gateway review successes. Our multidisciplinary team focuses on discovery, user research, prototyping and coding right through to security, privacy and penetration testing. We use open source software components extensively for almost two decades. We adopted several different online collaborative tools and techniques in use with clients to improve transparency and team integration, all the while adhering to our strict processes defined under BSI ISO9001, ISO20000 and ISO27000.	100	Not shortlisted	2 points (3 max)	
DfE	Service design for Schools Digital Platform	Use Agile methodologies.	Texuna have helped upskill client staff working collaboratively in projects like Jisc, Ofsted, and University clients. Texuna delivered these projects by adopting formal scrum with daily standups, bi-weekly sprints with show/tell demos and retrospectives, identifying roles (project sponsor, project champion, product owner, scrum master) to structure projects. We use the client's collaborative tools to improve transparency and speed. We align our formal processes audited under BSI ISO9001, ISO20000 and ISO27001 with mixed agile methods including Lean Startup practices we share with our investments and Kanban style DevOps alongside traditional contractual Prince2 gateways (learned in the public sector).	97	Not shortlisted	2 points (3 max)	
DfE	Service design for Schools Digital Platform	Have significant experience of rapid prototype iteration based on ongoing user research.	Texuna invest in and work with Edtech startups. These rely heavily on fast prototyping and continuous integration and deployment of code. Real users often give immediate feedback on UI/UX changes and customer journey, and we sometimes push commits live as often as several times a day for startups. Texuna use different tools suitable for Discovery and Alpha phases to speed and structure our work into repeatable practices. These include Balsamiq/Pressie, InvisionApp, Axure, Indeemo and video composites. We use these to collect real evidence to inform multiple rapid UI/UX iterations before moving toward high fidelity coded prototypes.	96	Not shortlisted	2 points (3 max)	
DfE	Service design for Schools Digital Platform	Have significant experience of conducting user research & usability testing sessions (face to face and remote) based on a robust methodology.	For Ofsted we tested assumptions during user interviews with paper-based, people-centred journey maps, before replicating refined journeys on Balsamiq prototypes. These were refined with user feedback to refine the backlog of user stories. VIdeo composites of design mockup or InvisionApp iterations help collect usability feedback. Texuna work with Indeemo.com to provide qualitative research tracking of user behaviour and experiences across an audience of real world users through remote selfie-video observation. Texuna publish the OfS National Student Survey annually to thousands of users with continuous improvement via show-and-tell demos, and workshops with the HE sector and National Union of Students.	99	Not shortlisted	2 points (3 max)	
DfE	Service design for Schools Digital Platform	Have experience of recruitment of user research participants (including users with accessibility and assisted digital needs).	Texuna work with clients to reach sample users from a target base. GDS provide panel tools and GOV.UK operate a research panel available for inclusiveness testing. To expand recruitment we work with Indeemo.com who have access to hundreds of freelance user researchers and specialist panel recruiters that source representative users. We iterate continuously with regular demonstrations to real users and solicit feedback, using specialist tools (e.g. U of Cambridge Inclusive Design Toolkit) to simulate accessibility issues to keep designs inclusive. Accessibility is also tested with the GDS recommended toolsets to at least WC3 AA level and independently tested.	98	Not shortlisted	2 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Service design for Schools Digital Platform	Have experience of analysis of existing research, analytics and insight to ensure good understanding of users and their needs.	Texuna's Business Analysts and User Researchers focus on collecting and analysing existing artefacts from top-down user research before engaging users with visual techniques to convey understanding or to test hypothesis during interviews. Analysts also follow the data audit trail of past usage behaviours to establish new hypothesis for testing. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements such as with Jisc and University data warehouses.

We also leverage lessons learned / retrospectives on projects like Ofsted to generalise about what user experience, design and content really helps users to achieve their desired outcomes. | 100 | Not shortlisted | 2 points (3 max) | |
| DfE | Service design for Schools Digital Platform | Have experience of delivering high quality content and information architecture design for complex user journeys across multiple touchpoints, that meets user needs. | Texuna have firsthand experience developing understandable communications for thousands of DfE users while operating digital-first services for DfE over the last 15+ years. We partner with content designers for challenging work. Today we can iterate and test content quality using mobile ethnography (Indeemo).

We do qualitative research by tracking user behaviour and feelings directly at the moment of experience. Through task workflow, focus group users keep a tracking diary of their experience with an authentic visual record of their journey and interaction. Action research is done when researchers respond to user posts to analyse and moderate data. | 97 | Not shortlisted | 1 point (3 max) | no real mention of IA and managing content for complex journeys |
DfE	Service design for Schools Digital Platform	Have experience & capability of creating plans for Beta from both a design and technical perspective.	The largest example is Jisc where successive beta 'rolling waves' allowed Texuna to deliver successive agile releases to Live each 90 days. Texuna planned, groomed and delivered a backlog of well over a thousand user stories. Similarly Texuna executed the Ofsted Fostering Data Collection design - implemented as cloud infrastructure, message queue, ETL dataflow configuration and frontend Single Page Apps. Texuna joined the GDS and DfE team on the Beta stage for the DfE GIAS/Edubase replacement. Beta plans include hardening and industrialising the designs and enssure adequate protections for security, scalability and vulnerability / penetration testing.	96	Not shortlisted	1 point (3 max)	Not sufficent evidence
DfE	Service design for Schools Digital Platform	Show evidence in leading, coaching, mentoring and upskilling people in agile techniques and roles to build agile capability within existing teams.	Texuna worked collaboratively onsite with Jisc over 2 years to deliver a greenfield Enterprise Data Warehouse. Texuna mixed lean, agile and kanban techniques with the collaboration tools already in use at Jisc. We conducted over 100 interviews and a dozen workshops during Discovery. We introduced terms, methods and formal roles in Agile Scrum to the inhouse team, and delivered upskilling sessions based on the architecture and technologies used and implemented. This included agreement on collaborative coding, the definition of done, and handover of source-code and cloud devops to a shared repository. Texuna extended the client team to build internal competences.	100	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design for Schools Digital Platform	Understanding of the education & schools landscapes.	Texuna work with data for HEIs and schools for many clients including: Edukit (pupil premium and performance from SIMS data, and the Wellbeing Insights survey), Performance Profiles and NQT survey (ITTDMS), HESA returns and DLHE data, DfE GIAS (EduBase database of educational establishments) and National Students Survey results site for the OfS. Texuna work under the oversight of HESA and OfS when dealing with higher education sector data on behalf of universities. Texuna work with Oxford Brookes University and London Metropolitan University to deliver their respective Higher Education Data Warehouse services. We operate Secure Access for DfE data.	98	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design for Schools Digital Platform	Experience in designing citizen-facing digital services.	We use Indeemo (qualitative research platform) to truly understand UI/UX in the context of actual usage at the point of consumption. We get close to end users to appreciate their intention, interface interaction and build empathy with each user. We also work closely with and invest in startups as a technical partner - such as Edukit pupil wellbeing - to design audience-appropriate services. For OfS we disseminate the National Student Survey results to a large audience. Historically we actually operated transformative digital services on behalf of DfE (i.e. ITTDMS, Edubase, Secure Access) and truly understand the challenges.	97	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design for Schools Digital Platform	Experience in taking services successfully through the GDS Service Assessment.	Texuna works with the Department for Education and successfully passed many needed reviews, external penetration testing, risk and security assessments. These resulted in successful approval for live running for the SA Access and Authentication solution for the Department and the EduBase2 launch and live running. EduBase2 is now re-engineered as GIAS and we work with the Department to improve it in the build-up to the next GDS service assessment. Texuna worked with Ofsted on the Fostering data collection service subject to GDS approval. Texuna is certified by BSI for security, quality and service standards and hold cyber essentials.	97	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design for Schools Digital Platform	Experience of working in partnership with technical delivery teams.	Texuna worked onsite with Jisc in Bristol in 2016-17, helping establish a data warehouse team, a governance process and an agile methodology. Implementation included Jisc staff from kickoff ensuring self-sufficiency after handover. All levels and roles were engaged to build awareness and understanding of user-led projects in an agile way. Texuna acted as an extension of the in-house client team helping to build internal competence and capability. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectories.	99	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design for Schools Digital Platform	Experience of using the gov.uk design system.	Texuna have used the open source code in the GOV.UK design system and front end toolkit libraries to deliver a number of projects. These include:
- Ofsted Fostering data collection
- eDisclosure solution deployed with Department of Finance Ireland
We have adhered to and applied the GOV.UK principles and designs in a number of other legacy projects including:
- ITTDMS for teacher training,
- Secure Access SSO for DfE, and
- ItemBank for STA.
Texuna run EduBase2 since 2008, collaborating with GDS in 2017 to relaunch as GIAS. Texuna created the API interface to the GDS front end Single Page App.	102	Not shortlisted	Nice-to-have skills or experience	
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have built a microservice systems to at least public beta in the past 2 years using Java, Javascript, Ruby or Python, ideally in a complex multi-user environment. 2%	At Texuna we have built and deployed several microservice systems to live in the last 24 months. For example we use java, javascript and ETL packages with message queues and AWS Lambdas for a schools data collection service for Edukit. We worked with GDS and DfE to migrate the Edubase legacy service to a fully functioning Rest API , allowing backend systems to be connected to a new Single Page App based on GDS design patterns and standard. We created microservices with REST API endpoints using YAML documentation to automate language-independent code generation with test stubs via Swagger.	98	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have at least 12 months experience operating microservice software. Describe how this was gained, ideally in an environment covering incidents, high resilience, logging and disputes. 2%	Yes, Texuna has developed and delivered a cloud-based series of microservices for Irish mobile app start-up CheckMate and their client Muintir na Tire. The service is used for community neighbourhood watch, with real time communication alerts. We migrated and retired a legacy system using a series of asynchronous services with API integration and message queues to manage the service delivery on AWS. Native mobile apps are available to users and a Single Page App is used for management and administration. Our EduKit project for schools also uses microservices to scale nightly data uploads from hundreds of school SIMS.	98	Were invited in 2nd round	2 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have 2 years experience building public cloud architectures using a script based 'architecture as code' approach and describe how this experience was gained. 2%	At Texuna, we have progressed our delivery of infrastructure from custom build to standardised RPM using Puppet over the last 10 years, to managing infrastructure as software through the use of Ansible for configuration and Terraform for deployment of infrastructure. We have significant experience deploying specialist IaaS, PaaS and SaaS in AWS CloudFormation (e.g. Jisc Enterprise Data Warehouse infrastructure). For portable cloud PaaS we focus on Ansible and Terraform. We are qualified AWS consulting partners and have experience hosting public sector services on both AWS or Azure, with experience migrating services from inhouse to AWS and/or to Azure for DfE.	100	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have 2 years experience operating in Continuous Integration environments shared with multiple teams, ideally with third parties and describe how this experience was gained. 2%	We work with the DfE to host GIAS, using continuous integration and continuous deployment to Azure to automatically manage operations together with other GDS suppliers. Our CI/CD is based on: * GIT for version control * Jenkins CI for dependency management, package preparation and delivery * Junit for unit testing and Allure for automated regression testing * Ansible and Terraform for provisioning and deployment. Texuna developed a system for continuous automatic testing of ETL transformations for data projects. The framework simplifies test development, testing each data stream separately to cut testing time through automated regression reports. It uses PyTest and Allure.	101	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have 2 years experience performing user research and using that data to inform their build and describe how this experience was gained. 2%	For Ofsted we delivered a public Fostering Data Collection service in Q1-2018 after conducting internal and provider user research. We prepared early low-fidelity prototypes, mockup wireframes and video composites and hifi prototypes all the way through to iterative continuous improvement on the live service. We work with Indeemo.com to do qualitative research videos to scale user recruitment and user research. This allows us to scale feedback collection to evaluate design and usability. Accessibility is tested with the GDS recommended toolsets to at least WC3 AA level and independently tested.	89	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have 2 years experience of working with mixed supplier and customer teams and describe how this experience was gained. 2%	Texuna have worked with DfE teams and 3rd party suppliers on several projects for many years. Two examples are: * GIAS (Edubase replacement) - working with a GDS team and 3rd party designers to integrate the legacy schools database to a GDS compliant Single Page App that better meets user needs. * Secure Access - the Single Sign-On service integrates at least 10 application platforms with a half dozen different stakeholders and independent suppliers. CAB meetings and KITs ar essential to the smooth running of the live service and ongoing development and change environment.	94	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have 2 years experience of iterative delivery starting with an MVP and continuously adding value and describe how this experience was gained. 2%	Jisc Enterprise Data Warehouse is a good example. We jointly defined the tools, techniques and methods to be used with Jisc. We formalised roles with a product owner responsible for deciding just-in-time, priority-ordered backlog of stories. We started with an extended Discovery phase to nail down needs and scope with stakeholders and users. An Alpha phase delivered the MVP and tested infrastructure assumptions. Four 90 day 'rolling wave' betas followed, using an agile approach to define multiple epics and expanding on stories. We delivered working user journeys and datasets to Live in a predictable way guaranteeing useful outcomes regularly.	99	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Confirm you have 2 years experience building WCAG 2.0 level 2 (or equivalent) accessible web applications and describe how this experience was gained. 2%	Yes - Texuna's minimum benchmark for the last 15 years has been the AA level WCAG 2.0 - and we consistently delivered and tested to this standard for all our public sector clients. Today we have moved away from server-side rendering to Single Page Apps and have learned to improve our testing. We use WAI ARIA features to improve accessibility. We use scenarios to test for inclusiveness: CSS is turned off, functionality is keyboard accessible, non-text content has text alternatives, and functionality remains usable without JavaScript wherever possible. We use auditing tools and test across platforms with actual screenreaders (VoiceOver).	100	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Describe your experience in building AWS based architectures, the more AWS services the better. 2%	Texuna is an AWS Consulting Partner with certified staff and years of experience deploying AWS services for startups (Edukit, Indeemo, Checkmate - using Cognito, SQS, Lambdas, DynamoDB and RDS) and government (DfE/NCTL/HESA/OfS). We have also delivered AWS stacks for Oxford Brookes University, London Metropolitan University and University College Cork. We have migrated legacy solutions to AWS and Azure e.g. the DfE GIAS and Secure Access (high availability cluster); STA ItemBank. For univesities and Jisc we deploy an entire Enterprise Data Warehouse pipeline on AWS services (DirectConnect, VPC, EC2, EBS, RDS - Posgtgres/SQLServer, Redshift, S3, Glacier, CloudFormation, API Gateway, CloudWatch).	99	Were invited in 2nd round	3 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Describe your experience in Docker, ideally in an orchestrated technology such as Kubernetes or AWS ECS. 1%	Texuna created an eDisclosure service in the last 12 months. The service is composed of a collection of independently scalable microservices contained in Docker files. We discovered the limitations of Docker and therefore switched to Kubernetes to manage orchestration. It is orchestrated through AWS ECS for simplicity of management on cloud deployment. To make the service portable for a large inhouse government installation, we tested deployments with Minio (to replace S3 object storage) and Rabbit MQ. The solution was delivered to the Irish government (Dept. of Finance) and designed to handle 100+TB of data.	94	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Describe your experience in Terraform, ideally for a complete service architecture including pipeline. 1%	We use Ansible and Terraform to automate the infrastructure and platform configuration as software to give cloud deployment portability eg NCTL and DfE dev/UAT/Prod environments. At Jisc we used these tools to automate deployment of a dataflow pipeline from 140+ sources through pre-mirror, mirror, stage, ODS/MDS and EDW systems, including all backup, logging and audit trail processes. We managed Secure Access migration from private cloud (Eduserv) to AWS, and Edubase from colocation to Azure, working with multiple 3rd parties with zero downtime. We have also migrated database stacks and upgrade software versions with these tools.	95	Were invited in 2nd round	2 points (3 max)	
Crown Commercial Servises	Crown Marketplace Foundation	Describe your experience in Python, ideally in a web application. 1%	Texuna delivers in a number of programming languages, predominantly Java and Javascript. We sometimes use Python for a limited amount of BI and analytics use cases. We also use Pytest to build our automated ETL testing framework on top of the Allure platform.	44	Were invited in 2nd round	1 point (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Crown Commercial Servises	Crown Marketplace Foundation	Describe your experience in Salesforce data integration and how this was gained. 1%	Texuna work with proprietary SaaS datafeeds such as Dynamics365 and Salesforce, as well as bespoke integration. We achieve this using open source tools (ETL, ESB). At DellEMC we import their customer data from Salesforce and create a genetic fingerprint of sold VMWare products. We simplify strategic reporting and analysis with data integrated from multiple sources with auditing and versioning. At Jisc we integrated 140+ feeds to support cross-service reporting to Jisc Members. SaaS integration included Salesforce and Eventsforce through official APIs. We analysed data quality issues and recommended various changes to the Salesforce data models to improve governance.	98	**Were invited in 2nd round**	**2 points (3 max)**	
Crown Commercial Servises	Crown Marketplace Foundation	Describe your experience working in a way similar to Government Design standards, including external assessment based governance. 2%	Prince II and Digital by Default gave structured gateways and guidance to Texuna's public sector projects in a non-prescriptive way. We successfully completed client gateway assessements for delivery, service and security over 15+ years (e.g. DfE RMADS, AA Accessiblity, Pentesting etc.). More recently we transformed Texuna's playbook to be agile in a standards-driven, transparent way, embracing 12 factor application patterns and cloud architecture. We embraced the prescriptive GDS guidance governing digitial service spend and help clients become agile. With clients like DfE GIAS and Ofsted Fostering Collection we navigate the 18 Digital Service Standards together to prepare for external assessments.	100	**Were invited in 2nd round**	**2 points (3 max)**	
Crown Commercial Servises	Crown Marketplace Foundation	Describe your experience in Government OFFICIAL security standards or similar. 1%	All Texuna Department for Education projects are at OFFICIAL level. These include Secure Access (Single Sign-On beyond the firewall to all schools), Getting Information About Schools, NCTL Performance Profiles ITTDMS, STA Itembank. Ofsted Fostering Data Collection is a non-departmental project. Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed audits and RMADs assessments including third-party penetration tests and Cyber Essentials. Our developers follow OWASP best practices and we internally penetration test all our solutions. Texuna have deep expertise in securing machines and virtual private networks through configuration of infrastructure as software.	99	**Were invited in 2nd round**	**2 points (3 max)**	
UWE Bristol	Digital experience platform	Demonstrable experience developing applications and services with an enterprise level CMS/DXP product using .net and/or java	Texuna work across relational and NoSQL databases, Redis caching technology and backend object storage. For the DfE ITTDMS Texuna completely intergrated the lightweight RIOT CMS (based on Java Spring framework) into a modular data collection software stack in Java to manage all the content design independently from collection processes and data validations. Before RIOT Texuna integrated with the OpenCMS (java) platform. At Jisc Texuna worked with many sources including the Episerver CMS which is .Net based, extracted data and calculated usage metrics for publication to the Members portal on Drupal. Today use headless CMS like Contentful and ButterCMS.	98	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of integrations with data feeds and content feeds from other systems or third-party channels	At Jisc (Bristol) Texuna created an Enterprise Data Warehouse with 120+ feeds from cloud SaaS and inhouse systems. We combined structured and unstructured data into a coherent picture and made it available for BI (insights) and service usage (parsing log data and Google Analytics). We took data from content sources including Sharepoint and Episerver and pushed content to MediaWiki (for internal governance) and to Drupal (Members portal). Similarly we integrated data feeds from Banner SRS at Oxford Brookes University and from Tribal SITS at London Metropolitan University and combine it with 3rd party data(Unistats, HESA/DLHE, OfS NSS).	97	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of integration with a CRM system to support user experience of the website	Texuna is an investor in and a technical partner to Tweekaboo, a mommy diary and social network. We worked on a project together with Bounty to work with their Sitecore CMS as a source of content for personalisation and whitelabeling delivered to a mobile app. The proof of concept was successfully tested but the final project never took place because of failure to conclude commercial negotiations. However the strategy and technical of using the digital assets stored within Sitecore to serve up the personalised content and white labeled options was thoroughly investigated.	92	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of authentication and single sign-on integrations	Our Secure Access solution for identity authentication and access management uses SSO and SAML to link multiple bespoke DfE services. We integrate with ActiveDirectory and other sources via open standards such as OAuth2.0, SAML2 and OpenLDAP. Integration with legacy user groups reinforces existing permissions and assures these are applied to restrict access through search controls so that only authorised users will see or know of the existance of indexed documents. Texuna have deep expertise in performance and penetration testing, as well as securing virtual private networks inhouse or in the cloud with Azure and AWS through software defined infrastructure.	99	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of delivering hosting solutions appropriate to size of website and volume of traffic/usage patterns	Texuna deliver high-performance high availability solutions for government and DfE - Secure Access is a clustered service scalable to support 100's of thousands of users. For OfS NSS we disseminate survey results to all universities on a highly optimised cloud data warehouse to support live queries against 10's of millions of records. We also built the Edukit SIMS data collection and a wellbeing survey cloud infrastructure for UK primary and secondary school pupils. We worked with Jisc to process billions of datapoints from the Eduroam and Govroam federation logs, as well as weblogs to interpret all Jisc digital resource usage.	100	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of integrating with databases and asset storage systems	Texuna have migrated database services from inhouse to AWS, and from AWS to Azure (ie DfE Edubase2 project and DfE Secure Access). At Jisc we used API and ETL integration with Sharepoint, OneDrive, Exchange, SQLServer, Oracle, Salesforce, Elasticsearch, etc. At London Metropolitan and Oxford Brookes Universities we have also integrated with O365, Google, Dropbox etc. For Dept of Finance (Ireland) we have integrated parsed and indexed raw data in json format from mbox/mailboxes/.pst archives, messaging services, phone data, pdf, images with OCR processing, etc. We designed for 100+ Terabyte of content as object storage on AWS-S3 and inhouse using Minio.	100	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of embedding accessibility principles in the design process and delivering to WCAG 2.0 AA standards with awareness of WCAG 2.1 compliance	Texuna's minimum public sector benchmark for 15+ years is WCAG 2.0 AA level - and we consistently delivered and tested to this standard for all clients. Today we have moved from server-side rendering to Single Page Apps with RestAPI to the backend. We now use WAI ARIA features to improve accessibility for digital inclusiveness as per GDS guidelines. We now test for various scenarios: CSS is turned off, functionality is keyboard accessible, non-text content has text alternatives, and functionality remains usable without JavaScript wherever possible. We use auditing tools and test across platforms including with actual screen readers (VoiceOver).	99	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of rapid development of prototypes and iterating design concepts informed by user testing	Texuna invest in and work with Edtech startups. These rely heavily on fast prototyping and continuous integration and deployment of working code. Real users often give immediate feedback on UI/UX changes and customer journey, and we sometimes push commits live as often as several times a day for startups. Texuna use different tools suitable for Discovery and Alpha phases to speed and structure our work into repeatable practices. These include Balsamiq, InvisionApp, Indeemo and video composites. We used these with Ofsted Fostering to collect real evidence to inform multiple rapid UI/UX iterations before moving toward high fidelity coded prototypes.	99	N/A	N/A	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
UWE Bristol	Digital experience platform	Experience creating a pattern library, source code repository and digital style guide	Since 2000 Texuna has designed patterns and built solutions with reusable open source components. We deploy version-controlled framework libraries over time. Today our approach hasn't changed other than the tools we now typically use: *GIT for document and code version control *Jenkins CI for dependency management, package preparation and delivery *Junit for unit testing and Allure for automated regression testing *PyTest and Allure for continuous automatic testing of data transformations. *Ansible and Terraform for provisioning and deployment. Our project documentation includes content models with notes on future governance. This includes a digital style guide to inform designers of recommended options under different scenarios.	103	N/A	N/A	
UWE Bristol	Digital experience platform	Delivering digital projects with HE institutions	Texuna work with student, HE and schools data for many clients: DfE GIAS/Edubase, DfE Secure Access, STA ItemBank, NCTL Performance Profiles and NQT survey, Jisc Enterprise Data Warehouse and member services, HESA returns and DLHE data, and OfS National Student Survey dissemination. For HEIs, Texuna currently work with University College Cork, Oxford Brookes University and London Metropolitan University. We help them manage and analyse student data from admissions, UCAS clearing, enrolment, attendance, participation, attainment, and destinations after graduation, compare UNISTATS data, do curriculum management and work placement data management. Texuna is also the largest investor in Alison.com with 12+M learners.	100	N/A	N/A	
UWE Bristol	Digital experience platform	Using AI and machine learning to benefit user experience	For unstructured content Texuna have worked with generative probabalistic clustering such as the Latent Dirichlet Allocation model as a form of unsupervised machine learning to try to extract sensible structures and taxons from a corpus of content. We have applied this in our eDiscovery and eDisclosure work for the purposes of legal proceedings. This greatly simplifies Exploratory Data Analysis for users by providing skeletal structures to navigate unknown or previously unseen content. Lessons learned over time can be encapsulated in a Convolutional Neural Network by supervised training over tagged content or creating a Support Vector Machine.	96	N/A	N/A	
UWE Bristol	Digital experience platform	Expertise in privacy/GDPR compliance and awareness of wider compliance requirements	Our Access and Authentication solution at DfE provides a Single Sign-On gateway to 11 separate systems via SAML, including the National Pupil Database. The management system identifies and controls user and protects their personal data centrally to streamline GDPR processes and to eliminate further personal data collection and credential explosion. Similarly Texuna built the Jisc enterprise data warehouse which required the development of data classification and sophisticated obfuscation routines to manage data movement between dev/uat/production environments, with all sensitive data encrypted at rest. We are also delivering the PHE solution to securely store sensitive medical records for Nuclear Radiography Epidemiology.	100	N/A	N/A	
UWE Bristol	Digital experience platform	Experience of developing solutions for "headless" publishing	Texuna have 18+ years experience engineering component builds from open source and proprietary software, and 5+ years in cloud-based microservices and API interfaces. We break services, data and content into component parts, and build indpendent, responsive Single Page Apps that interface via API to backend applications, databases and CMS. We use CMS in a headless way for well over 5 years since we embedded the RIOT CMS into the data collection application for the DfE/NCTL Initial Teacher Training Data Management System. SImilarly we have integrated the Edubase2 backend to the new SIngle Page App for DfE Getting Information About Schools.	100	N/A	N/A	
DHSC	Medical Examiner programme	Deliver digital services that meet the GDS Digital Service Standard criteria and pass GDS service assessments and how this will ensure the successful delivery of this service (not public facing)	Texuna already work with GIAS in DfE in an agile approach across GDS gateway reviews. We have worked with Digital by Default and Digital Service Standards for many successful public sector projects. Our startups and consumer apps bring 100% user-centered and rapidly-prototyped agile approach to our deliveries. E.g. Indeemo.com is a qualitative research selfie video startup which we can use to research UI and UX. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We have used open source software components extensively for over a decade with extensive data and dashboard reporting expertise.	97	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Develop prototypes into functional beta systems iteratively via user testing/research and how this will ensure the successful delivery of this service	With Ofsted Fostering data collection we completed Alpha, Beta and Live within 120 days. We received extremely positive feedback from local authority users and Ofsted staff for the final digital service experience. Texuna have agile prototyping experience with B2C startups with video, mobile, and web technologies. We rely heavily on regular prototyping and continuous integration and deployment of production-ready code to shared repositories. Texuna has worked with tools such as Balsamiq and InvisionApp to transform quick wireframes into realistic UI designs for App development. Sprint reviews with stakeholders and users provides immediate feedback to inform UI/UX and user journey improvements.	100	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Develop digital services using agile methodologies and how this will ensure the successful delivery of this service	Texuna work with the agile methodology over the last 3 years, converting a waterfall style with traditional tools to an interactive, shared development methodology with visual tools and workgroup techniques. Texuna work with modern collaboration tools and development workflows including Pivotal Tracker, Slack, TeamServices with JenkinsCI continuous integration and deployment approach working with cloud-based infrastructure and networks defined in software code. We use daily standups and bi-weekly scrums to collaborate and we do 'show me, don't tell me' sprint reviews soliciting feedback for ongoing User Research. We use lean design thinking to stay user-focused, and kanban to drive continuous improvement.	100	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Prioritise key content and features using metrics, analytics, and user feedback and how this will ensure the successful delivery of this service	We engage multiple stakeholders ASAP with 'show me don't tell me' artefacts to capture and measure real feedback on wireframes, prototypes and working products. We use Indeemo.com mobile-based qualitiative ethnography videos to monitor user behaviour in real life. We recruit a research panel with People For Research if a bigger audience is needed. User Researchers build empathy to understand users motivations and desired outcomes and test our assumptions. Texuna use historic data logs and click analysis with google analytics as evidence on usage and behaviour to generate inform user journey hypothesis for testing and to right-size technical architecture decisions.	99	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Prioritise product and programme delivery using effective estimation and sizing techniques and how this will ensure the successful delivery of this service	Texuna have 18 years experience in estimating and building complex projects and programmes of work to deliver fixed-price workstreams. We have combined this experience with agile effort and complexity estimations using the t-shirt sizing approach combined with User Story Points system to manage project workloads for just-in-time priority-driven backlogs by product owners and service champions. We have also worked in multi-vendor teams and multi-stack technologies and legacy systems. We use RICE (Reach Impact Confidence Effort) matrix to guide product development and MoSCoW (Must have, Should have, Could have, Won't have) matrix to clarify competing User Story priorities with stakeholders.	99	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Design and build services which meet user needs, follow GDS design patterns, meet accessibility standards and how this will ensure the successful delivery of this service	Texuna have 15+ years understanding and practical experience of the needs of government and ever evolving GDS guidelines. Our extensive work with GDS on Edubase (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. We have reused the Frontend Toolkit across several projects to create Single Page Apps. All Texuna user facing deployments are at least WC3 AA level accessible and have been independently tested and verified. We have built up a strong appreciation for User Research and hypothesis testing with users and commit to ongoing design testing and improvement.	93	Not shortlisted	Not mentioned	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DHSC	Medical Examiner programme	Demonstrable experience of leading public sector teams, particularly those with no experience of Agile	Texuna work collaboratively on an open book basis as an extension of the client team to build internal competence and capability. We use existing project and collaboration tools to minimize friction and maximize knowledge transfer, or introduce alternatives if necessary. In Jisc in 2016-2017 we worked onsite alongside Jisc staff, transferring skills, mentoring and coaching daily across multiple locations. For SecureAccess we formalize change management and are present at Project Board and Change Board level. For NCTL and OfS(NSS) projects we provide end-user training, tutorial videos and user workshops to promote uptake and identify and resolve improvement suggestions.	98	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Demonstrable experience of carrying out user research with a diverse mix of users and stakeholders	With University College Cork, we have created a visual, interactive workshop-based approach to design thinking focused on different persona and customer journey. We engage in observation as espoused by the GDS through Indeemo (qualitative research app) to truely understand UI/UX in the context of typical usage. We get close to end users to appreciate their intention, interface interaction and build empathy with each user. We have partnered with People for Research to recruit panels of users to extend our research to a wider more representative group of users - including difficult-to-reach users with more accessibility requirements.	96	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Demonstrate the ability to engage with stakeholders and harness learning	Texuna solutions typically have multiple stakeholder types including internal and external users. Different stakeholder types have different and important requirements and measures of success. We engage with stakeholders at all levels using interviews, workshops, online portals and questionnaires to solicit needs and priorities. Examples of tools we use are: collaborative agile workshops, Enterprise Business Matrix , fishbone diagrams, Business Model Canvas, Journey Touchpoints etc to document requirements, identify priorities and highlight quick wins, strategic initiatives and workarounds. For example we work with OfS to disseminate the National Student Survey results, and run annual engagements nationwide to keep improving the service.	100	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Specialist capability and experience in transforming business critical, legacy technology and services into efficient modern solutions	With Jisc 2016-17 - we reviewed and delivered on a business case for an Enterprise Data Warehouse with 130+ feeds. For each major project we investigate suitable COTS, cloud services and open source libraries, not afraid to build and borrow and integrate software and microservices to create high performance, scalable and functional services. We closely monitor GDS standards and best practices to deliver creative, innovative, high quality and value-for-money solutions that users really appreciate. For DfE with GDS, we transformed the legacy Edubase2 into Getting Information About Schools by creating APIs from a Single Page App to the legacy system.	100	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Proven service design and development and technical expertise in delivering a digital service	Texuna have 15+ years delivering government digital services following GDS guidelines from its earliest days. E.g. Texuna used early versions of the task-list pattern in the NCTL Performance Profiles collection task manager, and in the Staff Individualised Records for Life-Long Learning UK many years ago. NCTL ITTDMS data collections and statutory reporting were the first fully digital services launched in 2003 when Texuna built and operated the service on behalf of the agency up until today. Nationwide digital services recently delivered include OfS National Student Survey reporting and analytics, Ofsted Fostering data collection and DfE Secure Access IAM.	99	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Demonstrate experience of successful delivery of digital services from Discovery to Live	At Ofsted, Texuna delivered the first online Fostering Data Collection service in Q1 2018. We collaborated on the redesign according to GDS guidelines. The old service used manual operations. Texuna combined user research with our own understanding of running data collections on behalf of NCTL for 15+ years to imagine what a new cloud digital service could look like, building out User Journeys from paper, scripted demos and working prototypes. The digital service now streamlines all steps in data submission with a back-office management portal. We received amazing written feedback from Ofsted and end users on the new service.	98	Not shortlisted	Not mentioned	
DHSC	Medical Examiner programme	Have experience upskilling client staff e.g. the internal Product Manager	Texuna worked onsite with Jisc in Bristol in 2016-17, helping establish a data warehouse team, a governance process and an agile methodology. Implementation included Jisc staff from kickoff ensuring self-sufficiency after handover. All levels and roles were engaged to build awareness and understanding of user-led projects in an agile way. Texuna acted as an extension of the in-house client team helping to build internal competence and capability. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives.	99	Not shortlisted	Not mentioned	
STA DfE	Digitally enabled assessments - service line	Work to GDS service standards.	Texuna natively understand the Technology Code of Practice and 18 Digital Service Standards. Texuna launched the first digital-only, W3C AA level service in 2003 for ITTDMS Performance Profiles. We already work jointly with GDS and DfE on the Get Information About Schools to assure deliveries and gateway review successes. Our multidisciplinary team focuses on user research, prototyping, incremental agile delivery right through to security, privacy and penetration testing for DevOps. We use open source software and open standards almost exclusively for two decades. We updated all our ISO9001, ISO20000 and ISO27001 scope, policies and processes to stipulate our agile processes.	100	Not shortlisted	Not mentioned	Sufficient evidence to meet the expected standard were NOT provided The panel felt that the response not explain how they or example working to a GDS standard. The response was too vague and 2003 example was pre GDS.
STA DfE	Digitally enabled assessments - service line	Use Agile methodologies	Texuna blend Lean Startup practices with Kanban style management and DevOps alongside Prince2 contract gateways. We have formalised our mixed agile processes under ISO9001, ISO20000 and ISO27001 with BSI audits. We build empathy with user research and focus on journey outcomes to create digital services. Texuna have embedded agile approaches collaborating with client staff in Jisc, Ofsted, DfE and University clients. We use formal scrum with daily standups, bi-weekly sprint planning with show/tell demos and retrospectives, formalising key multi-disciplined roles to structure projects and responsibilities. We also work with other GDS contractors for in collaborative sprints (DfE GIAS).	98	Not shortlisted	Not mentioned	Strong evidence and understanding were provided
STA DfE	Digitally enabled assessments - service line	Have significant experience of conducting user research & usability testing sessions (face to face and remote) based on a robust methodology.	Texuna publish the annual OfS National Student Survey. We have formal continuous improvement via show-and-tell demos, sector-wide workshops conducted regionally with HE staff and National Union of Students. We run a portal to open communication channels, engage and collect feedback. For Ofsted we tested assumptions during user interviews with paper-based journey maps, before verifying refined journeys on Balsamiq prototypes with feedback from local authority users. We distributed vIdeo composites of visual mockups to solicit usability feedback. We use UoC Inclusive Design Toolkit and the GDS recommended toolsets to simulate issues and verify WC3 AA compliance.	95	Not shortlisted	Not mentioned	Sufficient evidence to meet the expected standard were NOT provided Evidence of a robust methodology was poor.
STA DfE	Digitally enabled assessments - service line	Have experience of recruitment of user research participants (including users with accessibility and assisted digital needs).	Texuna initially work with clients to target proactive users for early engagement, although recognise these are not a representative sample. We expand to a representative sample with People for Research, a specialist panel recruiter with thousands of user participants in the UK. This includes labs and participants for accessibility testing as well as UX. We use Indeemo.com to find freelance user researchers and to provide qualitative research tracking of authentic user behaviour in the real world through remote selfie-video observation. GDS also provide panel tools and GOV.UK operate a research panel available for inclusiveness testing.	95	Not shortlisted	Not mentioned	Strong evidence and understanding were provided

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
STA DfE	Digitally enabled assessments - service line	Have experience of analysis of existing research, analytics and insight to ensure good understanding of users and their needs.	Texuna's Business Analysts and User Researchers focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. We also investigate historic audit trails (e.g. weblogs) for past usage behaviours to establish new hypothesis for testing. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements e.g. Jisc and University data warehouses. We also leverage retrospectives on projects like Ofsted and DfE GIAS to generalise lessons learned about what user experience, design and content really helps users to achieve their desired outcomes.	97	Not shortlisted	Not mentioned	**Strong evidence and understanding were provided**
STA DfE	Digitally enabled assessments - service line	Have experience of delivering high quality content and information architecture design for complex user journeys across multiple touchpoints, that meets user needs.	Texuna collect bottom-up evidence from search history, website analytics and legacy IA, and compare it to top-down collection from user research interviews and workshops. We use card sorting and Show-me Show-me exercises to get users to naturally articulate labels and groups into a taxonomy. We then test proposed IA in wireframes and hifi iterations, using feedback to improve navigation, usability, content and design. We use mobile ethnography to capture authentic behaviour and feelings in a multi-media tracking diary. Action research is done as users follow a task workflow and researchers respond users' posts across multiple touchpoints in a journey.	99	Not shortlisted	Not mentioned	**Strong evidence and understanding were provided**
STA DfE	Digitally enabled assessments - service line	Have experience & capability of creating plans for Alpha and Beta from both a design and technical perspective.	Texuna planned a 2 year project with Jisc incorporating Discovery, Alpha, multiple Beta phases and a Live handover. We created a conceptual visualisation of the entire project and outlined high level Capabilities and desired Outcomes for different user journeys as Epics. We used RICE/MoSCoW matrix with coarse estimates for each Epic to clarify priorities with stakeholders. Outcomes were deliverable each 12 weeks. By the end of the Discovery we had created a backlog of the key User Stories - which would subsequently grow to 1,000+ delivered by Handover. After each phase, outcomes and estimates were reviewed and re-prioritised as necessary.	100	Not shortlisted	Not mentioned	**Strong evidence and understanding were provided**
Ofsted	Ofsted digital services - discovery and alpha services	Full understanding and demonstrable experience of a wide range of research and design methodologies for designing high-volume digital services which have a diverse mix of users.	Texuna use visual, interactive design-thinking techniques in workshops with stakeholders and representative users. We generate personas, user journeys, service touchpoints and hypothesis for testing. We create Balsamiq low-fi wireframes to select alternatives before prototyping hi-fi design mockups with InvisionApp and GDS SPA Design toolkit with API stubs. We observe users in qualitative research using Indeemo remote mobile ethnography to capture authentic UI/UX behaviours during actual usage. We get close to users to appreciate their intention, interaction and empathise with their feelings. We apply mixed techniques with high volume services including Jisc EDW, Ofsted Fostering, OfS NSS dissemination and DfE GIAS.	100	Not shortlisted	2 points (3 max)	
Ofsted	Ofsted digital services - discovery and alpha services	Strong experience of delivering discovery-alpha work to government service standards and through GDS assessment; demonstrable experience of using the outputs of discovery-alpha to set scope of the next stages.	For Ofsted Fostering collection Texuna started lean, building from paper touchpoints to Balsamiq wireframes and video composites to hi-fi interactive prototypes on InvisionApp as we learn and ideate hypothesis in Discovery and test assumptions in Alpha. We use behaviour driven development (Selenium Webdriver) and GDS frontend toolkit to finalise the Alpha prototypes to set early baselines for deployable code. We reuse GDS frameworks and patterns for Single Page Apps, and delivered a prioritised backlog of User Stories at end of Alpha to baseline beta phase work. Likewise Texuna worked with GDS and DfE GIAS/Edubase replacement to pass GDS Service Assessments.	100	Not shortlisted	2 points (3 max)	
Ofsted	Ofsted digital services - discovery and alpha services	Ability to scale the team to lead on further discoveries or alphas alongside existing discovery and alpha projects (with appropriate notice/agreement of work package).	Texuna has 35+ employees with an average of 10+ years experience within Texuna. We are committed to growing the UK team with sufficient mentors to onboard new hires. We are redeploying our NCTL ITTDMS team as we close our 15 year engagement, giving us spare capacity in coming weeks. We sometimes work with selected partners and freelancers for specialist roles or certain locations. For example Jisc asked us at short notice when commencing a 2 year project in 2016 to provide a separate team locally onsite. We put a team to work independently on a tactical project for 3 months.	100	Not shortlisted	2 points (3 max)	
Ofsted	Ofsted digital services - discovery and alpha services	Proven ability to build in-house skills and help the core DDAT team achieve buy-in to user-centred and agile approaches, through joint delivery, coaching and working with senior stakeholders .	Texuna worked onsite with Jisc in Bristol in 2016-17, helping establish a data warehouse team, a governance process and an agile methodology. Implementation included Jisc staff from kickoff ensuring self-sufficiency after handover. All levels and roles were engaged to build awareness and understanding of user-led projects in an agile way. Texuna acted as an extension of the in-house client team helping to build internal competence and capability. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives.	99	Not shortlisted	2 points (3 max)	
Ofsted	Ofsted digital services - discovery and alpha services	Strong demonstrable experience of rapid iterative prototyping based on ongoing user research	For fostering data collection we completed a public Beta within 120 days, going from paper ideas to production-ready code through ongoing sprint show-and-tell with feedback between developers, users and stakeholders. We used Balsamiq and InvisionApp to transform wireframe alternatives into realistic UI designs for App development. Texuna have years of prototyping experience with B2C startups with video (Indeemo), mobile (Checkmate), and web technologies (Edukit, Alison.com). We combine prototyping, continuous integration and sometimes same-day deployment of code, based on user feedback and adjustments. We can scale up user research with Indeemo and recruit user research panels to better inform UI/UX improvements.	100	Not shortlisted	2 points (3 max)	
Ofsted	Ofsted digital services - discovery and alpha services	Understanding of the education, childcare and social care landscape in England.	The Ofsted Fostering Data Collection project was launched successfully in May 2018, a national data collection of fostering capacity and children in agency care. The non-digital service used manual operations that caused issues with data quality and reduced overall user-satisfaction. Texuna delivered a digital service that streamlines all steps in data submission: data collection, validation, immediate data quality reporting and sign-off. Ofsted administrators now manage data through a back-office portal. We received excellent written feedback from Ofsted and end users. Texuna also work with DfE (GIAS, SecureAcces), OfS National Student Survey, NCTL (ITTDMS 15+ years), STA (ItemBank), PHE (Radiology Epidemiology).	100	Not shortlisted	2 points (3 max)	
Ofsted	Ofsted digital services - discovery and alpha services	Experience of delivering creative, innovative projects which take account of the latest developments to government service standards and/or emerging changes in user behaviour.	For projects like Ofsted Fostering Collection we investigate COTS, cloud services and open source libraries, not afraid to build and borrow and integrate open source software and microservices to create high performance, scalable and functional services. We monitor and apply GDS standards and practices to deliver high quality and value-for-money solutions that users appreciate. For DfE GIAS, we transformed the legacy Edubase2 by creating APIs to a new GDS Single Page App. Investing in and working with lean startups allows us to test new cloud services and push the boundaries of creative services for users (Checkmate, Alison.com, Edukit, Indeemo, Shoutapp).	100	Not shortlisted	0 points (3 max)	
NHS Health Education England	Historic Foundation Doctor E-portfolio Data Interface	have two years experience of Agile working in the delivery of a website with sensitive data. (30%)	Texuna's agile methodology, used by our project delivery teams over 10 years, includes; sprint planning, deployment of multiple release candidates with continuous integration and continuous deployment on cloud stacks, priority based on user stories, feedback and customer journey planning. Sensitive data case study references using our agile approach include Jisc (data integration and warehouse for Business Intelligence and Customer portal), Public Health England (PHE) (Radiology Epidemiology personal health records at a secure PHE location) and the Department for Education (DfE) (identity and access management (IDAM) integrated with multiple vendor applications for school student data management. This contract was awarded 2009, reawarded 2016).	102	N/A	N/A	

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NHS Health Education England	Historic Foundation Doctor E-portfolio Data Interface	have at least a year's experience of setting up a support process (technical and for end users) to ready for handing over to HEE on delivery of the outcome. (30%)	Texuna provides end-user service support for DfE's EduBase database (since 2008) and the National College of Teaching and Leadership (NCTL) initial teacher training database (since 2004). We have created support materials including how to guides, FAQs, processes for email and telephone responses. We hold ISO20k / ITIL certification in addition to ISO 9001 and ISO 27001. We provide technical support for all our clients. We have handed over support processes at PHE and for the DfE identity management project. Texuna does not have access to these production systems so our documentation is essential to ensure proper maintenance and service by a third party.	103	N/A	N/A	
NHS Health Education England	Historic Foundation Doctor E-portfolio Data Interface	demonstrate a working knowledge of writing SQL Stored procedures and functions (20%)	All Texuna projects use standard RDBMS. We have extensive SQL and database tuning experience, our Jisc case study is a high transaction system processing 4 million transactions a day. Our experience of extract, transform, load (ETL) and enterprise service bus (ESB) tools allow graphical code generators to illustrate SQL logic to clients. Our data cleansing and integration skills, used in building the Jisc Enterprise Data Warehouse demonstrate expertise with SQL stored procedures and functions. Approximately 100 data source systems are transformed and cleansed to create the master data warehouse tables.	90	N/A	N/A	
NHS Health Education England	Historic Foundation Doctor E-portfolio Data Interface	Have experience with the following (but not limited to) Azure cloud services: Virtual Machines, Express Route, Virtual Network, Storage, StorSimple, Azure Database and Web Apps (20%)	Texuna uses both AWS and Azure cloud tools as well as open source cloud tools to host our services. We are equally comfortable delivering mission critical systems on Azure, AWS or in-house on a VMWare or OSS stack. Our sophisticated data architecture and full stack expertise requires detailed knowledge including network access and firewalls, IDAM security, machine virtualisation and resource management, IaaS/PaaS design, RDBMS/NoSQL and message queue management. Our experience includes: - the DfE IDAM case study has been migrated from in-house VMWare stack to Azure, and DfE's Edubase has been migrated from OSS stack to AWS and now to Azure.	101	N/A	N/A	
NHS Health Education England	Historic Foundation Doctor E-portfolio Data Interface	demonstrate 2 years experience in using Bootstrap and Font Awesome to build responsive enterprise solutions in line with prescribed branding guidelines	Our National Student Survey (NSS) results website:https://nss.texunatech.com/ui/login has used the Bootstrap framework and Font Awesome since 2013. We have also worked with https://www.tweekaboo.com/ to deliver a responsive website using the Bootstrap framework, Font Awesome and PHP tools. Texuna use standards like HTML5 and CSS3 to deliver websites and apps to exacting standards specified in the government service design manual (https://www.gov.uk/service-manual). We have integrated services following the Government Digital Service standards and guidelines for delivering public sector projects to the required level of usability and accessibility.	85	N/A	N/A	
Hackney Council	Prototype and build a production ready MVP Directory of Services	Provide a multi-disciplinary team, including user research, service design and front-end developer	Texuna provide continuity through full-time employees. Our core team is London-based, with additional resources available from our Cork office on a project basis - and we can place resources onsite for project duration. We are able to provide resources at Hackney Council including: - Delivery Managers to assure successful outcomes - Project Managers and scrum masters to manage team performance - Product and Service Managers to manage user priorities and assure outcomes - User Designer to coordinate user research and implement feedback - Business Analysts and User Researchers to map user journeys, create user stories, test prototypes and curate backlog.	100	Not shortlisted	Not provided	
Hackney Council	Prototype and build a production ready MVP Directory of Services	Adopt user-centred design and Agile approaches, consistent with the government's service design manual	Texuna use a design-thinking approach centered on the user to determine various user group responses to proposed designs. For Ofsted we iterated prototype screens with regular user-testing during Alpha before formalising agile delivery and UAT during Beta. "Setting Goals" workshops and 'show-me don't tell-me' sessions help us understand user methods and motivations, and test our assumptions. Texuna used sprint-based prototypes across successive deliveries. We captured evidence and measured user feedback following interations of rapid prototyping. Texuna delivered the Ofsted prototypes with GDS libraries, created the user story backlog, risk register and Beta phase plan as the key Alpha outcomes.	99	Not shortlisted	Not provided	
Hackney Council	Prototype and build a production ready MVP Directory of Services	Have experience of designing a directory that consumes third party APIs and provides API endpoints	Texuna have worked with GDS specifications over the last 6 months to deliver a fully functioning API to join backend systems with a new SPA frontend, aligning with GDS design patterns and standards (DfE GIAS). Texuna is a REST API integration expert, using YAML-based documentation to automate code generation in a language independent way. This streamlines development with well formatted documentation and test stubs provided through Swagger. Simplified integration code and automatic test scripting gives high quality assurance long term over the REST API. Performance and penetration testing of REST API guarantees security and availability of live services (Jisc Data Warehouse).	100	Not shortlisted	Not provided	
Hackney Council	Prototype and build a production ready MVP Directory of Services	Be agnostic of any particular software, enabling us to consider a range of options to meet user needs	Our Technical Architects ensure solutions are robust, future-proof, secure and vendor agnostic. We integrate open source components and industry standard tools to provide the most cost-efficient and user-focused processes. This may mean reuse of existing investments in licenced products or complete replacement of the tool if business benefits justify. For example, DfE STA Itembank we designed a bespoke solution to deliver specific needs, including data model, business rules and user interface. We have demonstrated our ability to work across heterogeneous inhouse/cloud environments and proprietary SaaS and traditional vendors through our data warehouse projects with Jisc, OBU and LMU.	98	Not shortlisted	Not provided	
Hackney Council	Prototype and build a production ready MVP Directory of Services	Share their work freely and openly with the Council and the wider community	Texuna work collaboratively on an open book basis as an extension of the client team, building internal competence and capability. We use existing project and collaboration tools to minimize friction and maximize knowledge transfer when possible. In Jisc in 2016-2017 we worked onsite alongside Jisc staff, transferring skills, mentoring and coaching daily across multiple locations. For DfE SecureAccess we formalised change management and participate in Project Board and Change Board level. Typical projects include end-user training, tutorial videos and user workshops. We use open source software components wherever possible, commit code to client GIT repositories and support open standards.	99	Not shortlisted	Not provided	
Hackney Council	Prototype and build a production ready MVP Directory of Services	Be able to meet the Local Government Digital Service Standard	Texuna implement the 18 GDS delivery principles since 2014. For example we have worked with Digital by Default and Digital Service Standards jointly with GDS and DfE on the Get Information About Schools project to pragmatically assure deliveries and gateway review successes. Our web-based Ofsted Fostering Data Collection went live in May 2018, based on user-centered and rapidly-prototyped agile sprints and iterative delivery reviews with internal stakeholders and external endusers. Our multidisciplinary team ranges from user research to security, privacy and penetration testing, such as agile migration of data to cloud based data warehouse and Business Intelligence for Jisc.	99	Not shortlisted	Not provided	
Hackney Council	Prototype and build a production ready MVP Directory of Services	Experience of a similar project	Texuna helped Jisc deliver a directory of 120+ services for their members portal. We work in multi-vendor teams and multi-stack technologies (Jisc and university data warehouses) as part of ongoing change management programmes. Texuna have 15+ years delivering public sector projects, and 5+ years experience helping lean startups create innovative services. We commit to fixed price workstreams with agreed delivery schedules, or agile work under GDS guidelines. After Discovery, we estimate effort and complexity using t-shirt sizing, then refining with Story Points. Outcomes are managed by product/service owners and delivery manager through just-in-time delivery of priority-driven backlog.	97	Not shortlisted	Not provided	

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IAM University of Derby	IAM	Demonstrable experience of designing / implementing / improving / managing / governing user access and identity management service	Texuna has: * Developed the Department for Education (DfE) Identity and Access Management solution for the schools sector. A case study to describe this work is attached as Attachment 1. * More recently Texuna worked with Jisc to roll out a cloud-based data warehouse and member portal with integrated Active Directory to facilitate single sign-on to relevant cloud services. * Lastly Texuna is engaged in a new startup (in stealth mode) focused on online identity management using exciting new technologies such as mobile biometrics and Universal 2nd Factor (U2F by the FIDO Alliance) to facilitate self service identity management.	98	Were invited in 2nd round	Not provided	
IAM University of Derby	IAM	Experience of working with managed suppliers to provide effective User Access and Identity Management services and solutions that have delivered a positive step change in security compliance	* Our case study in Attachment 1 explains how the Texuna IAM product is the gateway interface to 11 legacy services at the Department. * Texuna has worked successfully with the suppliers of these services to ensure the success of the integration work. * Secure Access provides a single signon solution to these systems. This has significantly improved ease-of-use, streamlined service and enforced rigorous access control to the legacy services. * Standards supported are: Shibboleth, OpenID, SAML2 and LDAP with both SOAP and RESTful web services. OAUTH2.0 compliance and U2F support is under active development. * Secure Access has passed stringent third party penetration tests.	103	Were invited in 2nd round	Not provided	
IAM University of Derby	IAM	Very strong technical understanding of User Access and Identity Management solutions, processes and systems	* Texuna IAM can be implemented either as an integral component within a solution, or as a separate application to manage access to portfolios of applications and services. * Texuna IAM has been developed based on industry standards. All connections are extremely secure, with SSL support configured with other protocols (e.g. Transport Layer Security v1 and above). * Communication of sensitive data via secure SAML assertions, SOAP and RESTful based web-services are utilised and secured via certificate exchange. Traffic between the link endpoints (Texuna IAM and an Application Web Service) is encrypted as part of the communication sessions established before messages are transferred.	103	Were invited in 2nd round	Not provided	
IAM University of Derby	IAM	Demonstrable experience of continuous improvement of IAM services	* Texuna has provided bespoke solutions to manage IAM and meet business needs for over 10 years. * The DfE Secure Access system demonstrates our willingness and ability to roll out sophisticated systems that meet exacting business needs. * Our projects have demonstrated deep understanding of integration of components in identity solutions, as well as integrating with existing legacy services such as Microsoft Active Directory. * Current improvements include: integrating U2F hardware-based asymmetric encryption technologies into IAM services and the potential use of blockchain technologies to support independent audit trail of online activities and behaviours that should be private and distributed rather than shared and centralised by default.	108	Were invited in 2nd round	Not provided	
IAM University of Derby	IAM	Capable of producing high quality output with a strong focus on attention to detail following design and delivery methods, tools and standards	* Texuna delivery methods follow documented methodologies to deliver robust products effectively. * We manage projects using Prince2 methods and develop using Agile methodology. * We use continuous testing methodology so test plans are specified at specification stage. Test plans include both objective and subjective tests and measure the system against key product quality criteria. * We place a strong emphasis on thorough in-house testing using automated and manual methods so that our high quality standards are maintained and our products are robust and fit-for-purpose. * We are certified to ISO 9001, ISO 20000-1 and ISO 27001 by our external auditors BSI.	102	Were invited in 2nd round	Not provided	
DVLA	Strategic Enquiries Platform Engineering Squads	Evidence and experience over a period of 3 or more years in delivering enterprise scale projects at pace, supported by delivery examples and contactable references.	Texuna has worked with a range of clients engagements from 3 to 15+ years. This includes NCTL (now within DfE) as well as with Jisc , Ofsted, DfE, STA. At Jisc Texuna created an Enterprise Data Warehouse with 120+ feeds from cloud SaaS and inhouse systems in year one with subsequent refinements and additions in Year2. We combined structured and unstructured data and made it available for BI (insights) and service usage. The solution delivers statutory, management, ad-hoc business and board-level reports, standardised robust business processes to gather data, data governance to ensure consistency and using common vocabulary. Contact: Vibhuti.Laroiya@jisc.ac.uk	100	Were invited in 2nd round	Not requested	
DVLA	Strategic Enquiries Platform Engineering Squads	Evidence and experience over a period of 3 or more years of working in a successful agile delivery environment.	Texuna delivered DfEEdubase and its migration to Get-Information-About-Schools (GIAS) using agile methodology. We put users needs first and technology as an enabler. We built user empathy, created an effective user journey, and translated the required outcomes into a portfolio backlog of Epics and User Stories. We assured timely delivery in 2 week sprints. Sprint ceremonies included demonstration, backlog grooming and agile prioritisation. Ofsted Fostering Data Collection too was delivered with Agile methods. Users engaged from the outset through review of Low-res prototype screens, modified and re-tested to reach agreed screen content. Build work included sprints with 'show-and-tells' and prioritisation through to test and launch.	103	Were invited in 2nd round	Not requested	
DVLA	Strategic Enquiries Platform Engineering Squads	Evidence and experience over a period of 1 or more years of delivering projects using modern delivery concepts such as at a minimum containerisation and Continuous Integration/Continuous Delivery pipelines.	We work with DfE to host GIAS, using CI/CD to Azure to coordinate with other GDS suppliers. Our approach is based on: * Java deployed to GIT for version control * Jenkins CI for dependency management, package preparation and delivery * Junit for unit testing and PyTest/Allure for automated regression testing * Ansible and Terraform for provisioning and deployment. For Department of Finance (Ireland) we delivered a fully containerised architecture that is fully portable across cloud and inhouse infrastructure. It used microservice components designed to scale to 100TB of unstructured data processing including OCR, file conversion and full text indexing.	94	Were invited in 2nd round	Not requested	
DVLA	Strategic Enquiries Platform Engineering Squads	Evidence and experience over a period of 3 or more years of construction of cloud-agnostic solutions that can be deployed into multiple/different cloud providers.	Texuna is both cloud and vendor agnostic. Our GIAS project was hosted originally as EduBase java application on dedicated inhouse servers using Microsoft SQLServer. It was migrated to Postges database and then moved to AWS cloud hosting in 2015. EduBase evolved to GIAS in 2017 and was migrated again to Azure hosting on the DfE standard environment. Similarly, Texuna runs DfE SecureAccess java app cluster, originally virtualised on VMWare within Eduserv before migrating seamlessly to AWS. Today we use Ansible, Teraform and Docker containers to simplify infrastructure portability e.g. with eDisclosure services for Dept for Finance Ireland.	97	Were invited in 2nd round	Not requested	

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DVLA	Strategic Enquiries Platform Engineering Squads	Evidence and experience over a period of 3 or more years of current and future software tooling and frameworks used to build synchronous and asynchronous application components.	Texuna invests in and delivers future technologies for startups e.g. a cloud-based series of microservices for mobile app CheckMate. The service is used for community neighbourhood watch, with real time communication alerts. We migrated and retired a legacy system using a series of asynchronous services with API integration and message queues to manage the service delivery on AWS. Native mobile apps are available to users and a Single Page App is used for management and administration. Similarly we support startup EduKit schools service which uses microservices to scale nightly data uploads from hundreds of school SIMS.	96	Were invited in 2nd round	Not requested	
DVLA	Strategic Enquiries Platform Engineering Squads	Evidence and experience over a period of 3 or more years using a set of open source software frameworks which combine seamlessly to delivery at speed.	Texuna support open standards, adhere to the Digital by Default standard and are vendor agnostic. We select the most appropriate tools for the task and provide future portability options to avoid lock-in. We have already worked with GDS to implement GOV.UK services and combined Angular-JS front-end SPA for Ofsted collections using PostgreSQL and Springboot/JHipster. For DfE Secure Access Texuna combined a range of OSS libraries into an Identity and Access Management system with Role Based Access Control quickly and effectively, focusing budget and effort on integration of a dozen or so systems and services with Single Sign On (Shibboleth).	99	Were invited in 2nd round	Not requested	
DVLA	Strategic Enquiries Platform Engineering Squads	Evidence detailing an example of 1 or more years using coding standards and techniques previously that could be implemented at DVLA.	Texuna designs patterns and buids solutions with reusable open source components, usually based on the Sun/Oracle Java coding standards and naming conventions. We deploy version-controlled framework libraries over time and reuse open source and GDS libraries. A more recent example includes Ofsted fostering data collection. We typically use the following tools: *GIT for document and code version control. *Jenkins CI for dependency management, package preparation and delivery. *Junit for unit testing and Allure for automated regression testing. *PyTest and Allure for continuous automatic testing of data transformations. *Ansible and Terraform for provisioning and deployment. Project and code documentation is standardised and borrows from GDS best practices.	100	Were invited in 2nd round	Not requested	
DVLA	Strategic Enquiries Platform Engineering Squads	Evidence and experience managing IT investments and large scale projects with a proven track record of meeting these in the simplest manner possible (MVP).	Jisc Enterprise Data Warehouse is a good example. We jointly defined the tools, techniques and methods to be used with Jisc. We formalised roles with a product owner responsible for deciding just-in-time, priority-ordered backlog of stories. We started with an extended Discovery phase to nail down needs and scope with stakeholders and users. An Alpha phase delivered the MVP and tested infrastructure assumptions. Four 90 day 'rolling wave' betas followed, using an agile approach to define multiple epics and expanding on stories. We delivered working user journeys and datasets to Live in a predictable way guaranteeing useful outcomes regularly.	99	Were invited in 2nd round	Not requested	
Hackney Council	A technical discovery phase to identify where to store housing management data and manage migration	Experience of working to the service design manual	Texuna use the GDS Service Manual as a blueprint and source of design patterns and libraries across many of our agile projects. Texuna drives open source and open standards, and have adopted the GDS frontend toolkit libraries to build prototpyes and deliver working Single Page Apps based on javascript, HTML5, CSS3 and RestAPIs. Recent example projects which are W3C AA accessible, digital only and fully inclusive based on the Service Manual include Ofsted Fostering Data Collection, DfE GIAS (Edubase), and eDisclosure for Department for Finance (Ireland) - where we have built iteratively based on User Research.	96	Not shortlisted	Not provided	
Hackney Council	A technical discovery phase to identify where to store housing management data and manage migration	Have passed a government service standard assessment	Texuna works with the Department for Education and successfully passed many needed reviews, external penetration testing, risk and security assessments. These resulted in successful approval for live running for the SA Access and Authentication solution for the Department and the EduBase2 launch and live running. EduBase2 is now re-engineered with RestAPIs for GIAS and we are working with the Department for the GDS LIVE service assessment. Texuna also worked with Ofsted on the Fostering data collection service subject to GDS approval. Texuna is certified by BSI for security, quality and service standards and hold cyber essentials.	96	Not shortlisted	Not provided	
Hackney Council	A technical discovery phase to identify where to store housing management data and manage migration	Have experience designing services for a wide range of digital skills and confidence	Texuna is well practiced engaging with different users, stakeholders and team-members with varying levels of digital expertise and service design competencies. For example with Jisc over a 2 year programme of work we helped build their inhouse agile knowhow as we jointly delivered their first enterprise data warehouse. This included 100+ user interviews and a dozen workshops using design thinking and visual aids to bring people together to share ideas and verify user needs. We also ran ideation sessions to get service owners involved in thinking about how service delivery could be improved.	93	Not shortlisted	Not provided	
Hackney Council	A technical discovery phase to identify where to store housing management data and manage migration	Ability to support development of REST APIs to Hackney's standards	Texuna have worked with GDS specifications to deliver a fully functioning RestAPI to join the legacy Edubase backend to a new Single Page App frontend (DfE Edubase-GIAS). Texuna used YAML-based documentation to automate code generation in a language independent way. This streamlines development with well formatted documentation and test stubs provided through Swagger - also allowing frontend and backend teams to work more independently. Simplified integration code and automatic test scripting also gave high quality assurance long term over the REST API. Performance and penetration testing guarantees security and availability of live services.	93	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Hackney Council	A technical discovery phase to identify where to store housing management data and manage migration	Experience of developing design patterns that can be reused for other services	Texuna have a deep understanding of the needs of government and evolving GDS guidelines, and have 12+ years of practical experience with reusable design patterns. For example, Texuna have reused a task list pattern in NCTL Performance Profiles collection task manager, in the Staff Individualised Records for Life Long Learning UK and more recently for Ofsted data collection. For Dept for Finance (Ireland) we have reused a range of GDS frontend design patterns and code libraries with new patterns developed for handling unstructured data, document viewing, online annotation and redaction. Similarly we reused many patterns for Ofsted Fostering data collection.	100	Not shortlisted	Not provided	
Hackney Council	A technical discovery phase to identify where to store housing management data and manage migration	Agnostic of technology and independent of any existing database suppliers	Our Technical Architects ensure solutions are robust, future-proof, secure and vendor agnostic. We integrate open source components and industry standard tools to provide the most cost-efficient and user-focused processes. If possible we reuse existing licenced products or introduce an open source alternative. All business logic is managed at the application layer with the database typically only used as a queryable persistence container with synchronisation/replication and backup services. This helps us guarantee simplified infrastructure portability. For example we work with DfE, Jisc and several Universities with data sources and deployed solutions based on SQLServer, Postgres, Oracle, cloud services and proprietary SaaS.	100	Not shortlisted	Not provided	
Hackney Council	A technical discovery phase to identify where to store housing management data and manage migration	Provide opportunities for people seeking ways into work in Hackney (eg through an apprentice working on the project)	Texuna's partner company (Texuna Integrated Security Services Ltd) already employs several apprentice engineers for installation and maintenance of security and IT equipment in London. As we grow our business in the UK Texuna are committed to training further engineers in the DevOps, networking and software security trades. If Hackney have access to suitable candidates who are interested in working with Texuna then we will make an offer to sponsor up to 2 apprentiship.	73	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	E1) Experience of delivering projects that model a proposed high-level system architecture	Texuna have modeled high-level architecture for several customers in the last few years for large-scale enterprise data warehouse projects. This includes a greenfield project with Jisc to integrate data across 3 independent business units and across 120+ services to its members (Universities). A 90-day Discovery Phase allowed a refined architecture to be established. Texuna have also modeled high-level architecture for several University data warehouse projects including Oxford Brookes and London Metropolitan. Similarly, Texuna worked with Hitachi to deliver a high-level architecture for a number of big data projects for Hitachi clients in financial services.	94	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	E2) Recent and demonstrable experience of designing systems to manage personally identifying information under the General Data Protection Regulation (GDPR).	Our Access and Authentication solution at DfE provides a Single Sign-On gateway to 11 separate systems via SAML, including the National Pupil Database. The centralised management interface allows users to be identified and controlled easily and once only to streamline GDPR processes and to limit personal information access. The Jisc data warehouse required the development of data classification and sophisticated obfuscation routines to manage data movement between dev/uat/production environments, with all sensitive data encrypted at rest and in transit. We also deliver PHE EPIDOS to securely capture, store and process sensitive medical records for Radiography Epidemiology at PHE.	98	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	E3) Recent and demonstrable experience in conducting the discovery phase relating to the use of digital solutions and technology in data analysis / MIS projects.	For Ofsted Fostering collection (2018) Texuna started lean with paper and Balsamiq wireframes, used video composites and hi-fi interactive prototypes on InvisionApp as we learn and ideate hypotheses. Texuna combined user research with our 15+ year experience operating NCTL data collections to re-imagine a new cloud digital service, building out User Journeys on paper to generate a User Story backlog. For Jisc, Texuna ran a 90-day Discovery phase with 100+ interviews and a dozen workshops for their Enterprise Data Warehouse. Texuna also do annual User Research workshops for OfS to continuously improve our National Student Survey data dissemination.	98	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	E4) Recent and demonstrable experience of applying the principles of user centred design to the development of digital solutions.	We combine GDS standards and best practices with our design thinking and user journey mapping. Our design-thinking approach is a multi-stage problem-solving process centered around users that requires designers to empathise with real people and test how different personas respond to a design. Our User Research tests the validity of key assumptions and decisions of our Designers through real-world engagement with bone fida users through prototype reviews after each development sprint. For Ofsted we iterated prototype screens based on user testing to highlight specific needs and issues. We also tested accessibility for digital inclusion.	94	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	E5) Recent and demonstrable experience of digital systems that take input and subject this to both automated and manual validation.	Texuna specialises in data solutions and pipelines. We enforce data quality and integrity across multiple validation levels - data field, field combination, record and database. We use real-time prompts help text for manual data loading for data registry or data collection and automated checks on warehouse loading. Our enterprise data warehouse for Jisc uses automated ETL processes to verify data against governance standards and generates master data records based on a prioritised hierarchy that ensures the most trusted source takes precedence in case of conflict. A full audit trail and error exception reporting ensures traceability and flags unexpected behaviour.	99	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	N1) Recent and demonstrable experience of working with healthcare organisations	Texuna work with PHE to deliver the EPIDOS patient record database containing 50+-year-old radiology epidemiology datasets. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, business process management and extensive input and output validation. Complex data feed manipulation via reprogrammable javascript functions provides flexibility to independently manage data feeds. Aggregated data reporting and data anonymisation for sharing are supported. Historically Texuna developed online EPR systems for PCTs and processed local authority MHMDS submissions.	93	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	N2) Experience of working with a range of users and stakeholders including scientific experts, technical and digital development teams	Texuna engage and communicate effectively with stakeholders, business and public users. We deliver 1st, 2nd and 3rd line support on government projects so we regularly interact with and help users with a variety of skills, roles and issues (e.g. DfE-SA, NCTL and OfS-NSS). For Jisc, we work with representatives of 120+ services (library digital resources, Janet network and Jisc R&D) and with internal IT, finance, digital security and legal experts. We also deliver Jisc service usage metrics to all member Universities and other customers (further education colleges etc.). For OfS we disseminate NSS results to all UK universities and NUS.	100	Not shortlisted	Not provided	

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PHE	Modernising PHE's Population Health Intelligence System	N3) Recent and demonstrable experience of working on Data Science / "big data" / machine learning projects.	Texuna has designed and implemented well-governed data lakes using Linstedt Data Vault 2.0 and Kimball dimensional EDW to deliver data assets reporting and automated analytics. Jisc processes billions of data points to produce a 250GB EDW of pre-processed historic data in a columnar store. Texuna also helped Hitachi deliver a 100TB data lake on Cloudera Hadoop nodes with Impala and Pentaho Spark connectors to generate customer segmentation insights for an insurance company. Texuna also disseminate the OfS National Student Survey results with 10's of millions of records available for real-time self-service reporting through custom and COTS analysis tools.	98	Not shortlisted	Not provided	
PHE	Modernising PHE's Population Health Intelligence System	N4) Recent and demonstrable experience of working with interdisciplinary and cross disciplinarily project teams including clinical and research science project members	Texuna deploys multi-disciplined teams and comfortably works with mixed client teams. Within PHE we work with ICT, data experts and statisticians. We work with faculty, librarians, ICT and non-academic staff with several Universities. For Jisc we established a data warehouse team, a governance process and an agile methodology which focused our attention on the whole range of projects, teams and services within Jisc as an organisation with hundreds of employees. We collaborate with client teams from the start to ensuring self-sufficiency after handover. All levels and functions were engaged to build awareness and understanding of the project and expected outcomes.	100	Not shortlisted	Not provided	
Department for Work and Pension	UC Data Agile Delivery Team	Immediate capacity to provide skilled resources (3 years+ experience) delivering and running successful Data products using agile techniques.2%	Texuna's agile data warehouse methodology has been used over 3+ years with Jisc. Our interactive project management, business analysis and DevOps approach provide robust early stakeholder engagement through agile workshops to embrace change. Texuna use an agile delivery methodology focused on user needs. We use a Scrum approach with bi-weekly Sprints, Reviews and feedback from users, together with daily standups. Discovery outcomes allocate implementation goals into 90-day time boxes. Data backlog is implemented in a logical and prioritised order based on the RICE Framework (Reach-Impact-Confidence-Effort) so that quick wins and strategic priorities get attention early.	95	Not shortlisted	1 point (3 max)	Partially Met
Department for Work and Pension	UC Data Agile Delivery Team	Immediate capacity providing skilled resource (3 years+experience) with senior level Agile Delivery Manager experience in enterprise product management environment, with recognised certification and delivery experience of Scrum, Kanban, Lean techniques.2%	Texuna have embedded agile approaches collaborating with client staff in Jisc, Ofsted, DfE and University clients for 3+ years. We maintain our processes under BSI ISO9001, ISO20000 and ISO27001 through mixed agile methods from Lean Startup, Scrum and Kanban (learned from our startup investments) alongside contractual Prince2 gateways (learned in the public sector). We use formal scrum with daily standups, bi-weekly sprint planning with show/tell demos and retrospectives, formalising key multi-disciplined roles to structure projects and responsibilities. We use visual boards and Kanban continuous improvement with DevOps and take lean lessons from the startup companies we invest in.	98	Not shortlisted	1 point (3 max)	Partially Met
Department for Work and Pension	UC Data Agile Delivery Team	Immediate capacity providing skilled resource (3 years+experience) with deep understanding and expertise in the behavioural and cultural change required to influence and deliver data change in a large government organisation.2%	Texuna's CEO led and scaled a team at Jisc for a large data warehouse project from discovery to delivery and operations as a service. The team grew from 5 analysts to 20 multi-disciplinary roles. The CEO leads envisioning workshops and stakeholder engagement at the highest levels including delivering a Business Model Canvas across 3 business divisions. The CEO also coached senior project members and service owner on behavioural and cultural changes required for good ownership and governance. We resource projects with flexibility to deploy or re-assign resources, or augment the team or skills with sub-contract partners and freelancers.	98	Not shortlisted	1 point (3 max)	Partially Met
Department for Work and Pension	UC Data Agile Delivery Team	Provide evidence of at least 3 years+ previous experience implementing data products in the cloud for public sector or comparable organisations, where security of data is paramount. Please give examples.2%	Texuna has 3+ years delivering in the public sector securing data. The DfE teacher training records statutory data publications grew to 10 annual collections. We are AWS partners and have experience hosting government data solutions on AWS and Azure (including migrations between them). We disseminate analysis reports concerning 10's of millions of National Student Survey results for OfS and universities. We provide IAM to Secure Access for all DfE data resources for schools including pupil data. We provide patient record data management solution for PHE for nuclear industry workers. We manage student data for our university data warehouse SaaS.	99	Not shortlisted	1 point (3 max)	Partially Met
Department for Work and Pension	UC Data Agile Delivery Team	Has experience of ensuring that continual knowledge and skills transfer to the DWP team is embedded as part of the approach to build individual and team digital capability.2%	Texuna work collaboratively on an open book basis as an extension of the client team, building internal competence and capability. For example - Jisc Enterprise Data Warehouse project. All levels and roles were engaged including: business know-how, stakeholder engagement, technical coding and efficient handover of source-code. Texuna's transparent partnership approach focuses on high levels of quality technical documentation to support handover and on-the-job training. Project signoff points to ensure staff is engaged in design and implementation. Texuna acts as an extension of the client team. Core documentation is available to all via an online and versioned document repository.	97	Not shortlisted	2 points (3 max)	Met
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Expert, proven full stack development skill set, using Node.js, AngularJS and Postgres	We support open standards and are vendor agnostic, giving future portability options to avoid lock-in. Our teams deliver in a number of programming languages and frameworks including AngularJS, Node.js and Java, as well as a number of databases including SQLServer, PostgreS and MongoDB. Our front-end team have produced GDS compliant solutions using AngularJS, JQuery, SASS mixins and other javascript libraries for Ofsted in the last year. We combined Angular-JS front-end SPA using PostgreSQL and Spring-boot/JHipster. Over the last 24 months we delivered a Node.js based microservices solution for Irish mobile app start-up CheckMate which is used for community neighbourhood watch.	100	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Expert, proven knowledge of designing data models and working at the database level with Postgres	We work with DfE, Jisc and several Universities with data sources and deployed solutions with several databases. Our data warehouse infrastructure uses a series of Postgres databases as our preferred option to manage the data pipeline from source systems extraction through mirror, staging, ODS/MDS and data warehouses. This is deployed as RDS-based Postgres services on AWS, currently in use with Jisc, Oxford Brookes University and London Metropolitan University. Similarly we use a highly tuned Postgres database on AWS to disseminate the OfS National Student Survey each year, with 10's of millions of records available for real time online analysis.	99	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Knowledge and understanding of Oracle – to support and deliver data migration and transformation requirements of the service.	Texuna have extensive big data and ETL / ELT experience from our data warehouse projects. Oracle is often a source for extraction. We have experience using flyway scripts and our own metadata framework to help us avoid the expense of proprietary Oracle tools to manage Change Data Capture. For example we worked with Hitachi for a major insurance company to pull up to 100TB out of operational Oracle systems for analysis on a Cloudera and Pentaho solution. Similarly we work with Oxford Brookes Univesrity to take Oracle data and put it into a data warehouse.	95	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Proven knowledge of core programming concepts such as MVC (Model View Controller) and Object Oriented design	Texuna has 18 years MVC web experience specialising in Spring framework for Java, delivering accessible web solutions for government projects. All our traditional 3-tier web solutions are based on object oriented design built in Java with server-side rendering. More recently we have extended these with tools such as JHipster and Springboot to increase agility and support Single Page Apps as part of our push to become GDS compliant. We have successfully integrated these approaches with GDS frontend libraries and design patters. We have since delivered rapid solutions for Ofsted for example, under 90 days.	94	Were invited in 2nd round	Tender was not submitted	

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Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Proven ability to define and create testing strategies and automate the testing of code.	Texuna use behaviour-driven and test-driven development using artefacts from alpha stages to set early baselines for deployable code. We automate regression testing against all commits that are integrated and pushed to release - often thousands of tests per project. This happens from first commits and with test version control through GIT (unit and integration tests are included in the test suite). We extended our framework using PyTest and Allure to capture and quality-check data-driven projects. We rigorously control code and data through continuous deployment to find problems early. Lessons learned from bug tickets are incorporated into automated tests.	98	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Experience creating bespoke web applications and authenticated APIs	Texuna use GDS libraries and standards to implement the Ofsted Fostering Data Collection system, and eDiscovery solution for the Irish government. Our developers are skilled in web application engineering with open source libraries and tools, Javascript and Asp.NET Razor. We demonstrated on GIAS how to develop API messaging between suppliers via YAML and Swagger for front-to-back integration services. Our web applications are hosted on either Azure or AWS and are typically designed to be cloud portable and independent. Front-end developers work closely with user researchers and business analysts to deliver the usable, accessible interfaces to stakeholders.	96	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Significant experience and expertise in Javascript.	Texuna delivers predominantly Java and Javascript. Our front-end team produce GDS compliant solutions using AngularJS, JQuery, SASS mixins and other javascript libraries. We use the GDS libraries and APIs for Ofsted to meet GOV.UK standards. Our teams gained deep knowledge of JavaScript and Typescript through Ofsted and CheckMate projects using Angular and NodeJS. We have combined these approaches with ETL packages with message queues and AWS Lambdas for a schools data collection service for Edukit. For Public Health England we created sophisticated feed manipulation via javascript rule plugins to manage annual data feeds for a 50+-year-old radiology epidemiology dataset.	99	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Proven experience of resourcing and delivering projects using the agile project management methodology.	Texuna blend Lean Startup practices, Scrum organisation and Kanban team boards alongside Prince2 contract structures depending on requirements. We have formalised our agile processes under ISO9001, ISO20000 and ISO27001 with BSI audits. We build empathy with user research and focus on journey outcomes to create digital services. We have embedded agile collaboration with client staff in Jisc, Ofsted, DfE and Universities. We use formal scrum with daily standups, bi-weekly sprint planning with show/tell demos and retrospectives, formalising key multi-disciplined roles to structure projects and responsibilities. We also work with other GDS contractors for in collaborative sprints (DfE GIAS).	98	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Experience working with GDS frontend toolkit, or industry equivalents such as Bootstrap or Foundation, to develop responsive websites	Our National Student Survey (NSS) results website has used the Bootstrap framework and Font Awesome since 2013. We have also worked with https://www.tweekaboo.com/ to deliver a responsive website using the Bootstrap framework, Font Awesome and PHP tools. Texuna use standards like HTML5 and CSS3 to deliver websites and apps to exacting standards specified in the government service design manual. We have integrated services following the Government Digital Service standards and guidelines for delivering public sector projects to the required level of usability and accessibility e.g. Ofsted Fostering collection service, which also used the GDS frontend toolkit.	96	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Experience working with GDS standard technologies including GOV.UK Cloud Platform as a Service, mail services and authentication; or industry equivalents.	Texuna use open source code in GOV.UK design system and frontend toolkit libraries to deliver a range of projects including data collection and e-Discovery. For DfE Secure Access Texuna combined a range of OSS libraries into an Identity and Access Management system with Role Based Access Control. Budget and effort focused on integration of 10+ systems and services with Single Sign On (Shibboleth). We implemented secure mail services using at least TLS 2 standards. We review best practices from GDS and thought-leaders, reusing tools, libraries and guidance such as Digital Frontend, and evaluated the use of Notify and Verify for DfE.	100	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Experience working to GDS Technology Code of Practice best practices; or industry equivalent best practices and open source coding standards.	Texuna natively understand the Technology Code of Practice and 18 Digital Service Standards working with design patterns and accessibility standards through GDS Frontend libraries. We work jointly with GDS and DfE on the GIAS project to assure deliveries and gateway review successes. Our multidisciplinary team focuses on user research, prototyping, incremental agile delivery right through to security, privacy and penetration testing for DevOps - e.g. on the Ofsted Fostering Collection. We use open source software and open standards for 18+ years. We are ISO9001, ISO20000 and ISO27001 certified for best practice coding standards, and code openly and transparently for clients.	100	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Experience of using Git, preferably with GitHub	We use GIT extensively for source control and configuration management. As we share source with clients we may use either Git or GitHub. GitHub is in use at major clients such as Jisc, to deliver an Enterprise DataWarehouse that Jisc staff now maintain, at Dell for our project with customer experience engineering and at London Metropolitan University where we are developing an Enterprise Data Warehouse. Our engineers are proficient in the use of both Git and Github, we will work with our clients' tools of choice. Our focus is to deliver value for money, platform independence and development execution.	99	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Experience of using and deploying AWS alongside PaaS, Lambda functions and S3 buckets.	Texuna is a certified AWS Consulting Partner with years of experience deploying AWS services for startups (Edukit, Checkmate - using Cognito, SQS, Lambdas, DynamoDB and RDS) and government (DfE/NCTL/HESA/OfS). We have delivered AWS stacks for Oxford Brookes University, London Metropolitan University and University College Cork. We use Ansible and Terraform to automate infrastructure and platform-configuration-as-software, in a cloud-agnostic way. We have deployed stateless and serverless technology as well as ETL PaaS to orchestrate dataflows between sources and streams of data to create automated workflow pipelines. We also use inexpensive object storage like S3 as part of pipelines and for BCDR.	100	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Experience of working in Dev/Ops culture, with expertise of monitoring websites to ensure they meet availability and performance standards.	Texuna engineer full stack enterprise solutions and operate substantial DevOps infrastructure. We run public sector services for DfE, Jisc, Oxford Brookes University, London Metropolitan University, Office for Students, etc. We operate with vmware, AWS, and Azure, monitoring mission critical service component via tools such as Zabbix hosted outside the network 24X7X365. Our BCDR automates infrastructure as code with targets under 60 seconds for full recovery on P1 incidents. We have met this target consistently for DfE Secure Access IAM system on AWS. We automate to minimise maintenance and harden services against abrupt unexplained behaviours.	94	Were invited in 2nd round	Tender was not submitted	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Proven knowledge and experience of developing services with effective User Interaction / Experience (UI) designs.	Texuna work with Adhoc Global to deliver professional UXD services. We use Indeemo as a qualitative mobile ethnographic research platform to scale our understanding of UI/UX in the context of actual usage at the point of consumption to a wider remote audience. We get close to end users to appreciate their intention, interface interaction and build empathy with each persona. For OfS we disseminate the National Student Survey results to a large audience and run annual workshops with users to capture their feedback. We have designed transformative digital services on behalf of DfE such as ITTDMS, GIAS/Edubase and Secure Access.	100	Were invited in 2nd round	Tender was not submitted	

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Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Proven knowledge and ability to define and implement user centric content and content structure	We use a mix of information architecture and design thinking approaches with users, highlighting their points of interaction with a service and map the journey for each persona. We use multi-stage user research to empathise with real people and understand their goals. We test how different personas respond to design and workflow - we test the validity of hypotheses, assumptions and decisions of our Designers through real-world engagement through prototype reviews after each sprint. For Ofsted we iterated prototype screens based on user testing to highlight specific needs and issues. We also tested accessibility for digital inclusion.	97	**Were invited in 2nd round**	**Tender was not submitted**	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Proven knowledge of developing secure solutions that meet security standards	All Texuna Government projects are at OFFICIAL level. These include Secure Access (Single Sign-On beyond the firewall to all schools), Getting Information About Schools, Teacher Training ITTDMS, STA Itembank and Ofsted's Fostering Data Collection. Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed Government audits and RMADs assessments including third-party penetration tests. We hold Cyber Essentials. We follow OWASP best practices and we pentest all our solutions internally (often independently validated). Texuna have deep expertise in securing machines and virtual private networks through configuration of infrastructure as software e.g Jisc EDW.	99	**Were invited in 2nd round**	**Tender was not submitted**	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Proven experience of developing accessible solutions that meet WCAG 2.0 standards	Texuna's minimum public sector benchmark is WCAG 2.0 AA level for many years - and we consistently delivered and tested to this standard for all clients. Today we have moved from server-side rendering to Single Page Apps with RestAPI to the backend. We now use WAI-ARIA features to improve accessibility for digital inclusiveness as per GDS guidelines. We now test for various scenarios: CSS is turned off, functionality is keyboard accessible, non-text content has text alternatives, and functionality remains usable without JavaScript. Our standard approach uses auditing tools and test across platforms including with actual screen readers (VoiceOver).	98	**Were invited in 2nd round**	**Tender was not submitted**	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Knowledge or experience of User Research methods and practises	Texuna team up with UXD experts Adhoc Global for advanced User Research expertise. Texuna use visual, interactive design-thinking techniques in lean startup style workshops with stakeholders and representative users. We generate personas, user journeys, service touchpoints and hypotheses to test. We move from paper to low-fi Balsamiq and video composite wireframes to generate alternatives before prototyping hi-fi design mockups with InvisionApp. We use the GDS SPA Design toolkit to generate working prototypes with API stubs, with agile iterations through sprint reviews with users. Qualitative research using Indeemo remote mobile ethnography to observe authentic UI/UX behaviours during actual usage.	98	**Were invited in 2nd round**	**Tender was not submitted**	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Knowledge or experience of Content Design	We partner with our clients and real-world users to ensure we empathise with them to understand requirements from their perspective. We mix Information Architecture approaches, reviewing actual evidence of historic site usage paths and search queries performed etc from Google Analytics and weblogs. Once we understand actual user behaviours we use workshops with users to generate plain english terms and use card sorting to help create structure. We work with experts from AdHoc Global to help us with writing styles inverted pyramid approach to creating content.	86	**Were invited in 2nd round**	**Tender was not submitted**	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Knowledge and experience of developing services within an adult social care context and setting.	Texuna have 17 years history working with healthcare datasets, including EPR and patient records systems to Primary Care Trusts on N3. Recent projects include the Epidemiological and Patient Information database (EPIDOS REDMS) for Public Health England. Texuna have implemented Mental Health Minimum Dataset reporting tools in the past for councils. The Ofsted Fostering Data Collection project was launched successfully in May 2018, a national data collection that documents the fostering capacity and children in the care of fostering agencies. The non-digital manual operations caused issues with data quality and reduced overall user-satisfaction. The digital service is seen as transformative.	99	**Were invited in 2nd round**	**Tender was not submitted**	
Skills for Care	National Minimum Dataset for Social Care - Beta (Services)	Knowledge and experience of wider health and social care data led projects	Texuna currently work with PHE to deliver the EPIDOS database to hold exposure to nuclear materials and patient record information. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, business process management and extensive input and output validation. Complex data feed manipulation via reprogrammable javascript functions to manage data feeds for the 50+-year-old radiology epidemiology datasets. Aggregated data reporting and data anonymization for sharing are supported. Prior to NPfIT Texuna installed EPR systems to PCTs.	95	**Were invited in 2nd round**	**Tender was not submitted**	
Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	A1: Experience (2>5years) of delivering design and development capability of Big Data Solutions in an Agile environment using Cloudera technologies.(6.25%)	Texuna have extensive big data and ETL / ELT experience from our Data Warehouse and Data Vault projects. Texuna are Hitachi Vantara partners and we have delivered several big data projects for Hitachi. We recently deployed a 100TB vault HUE, Impala/Hive and other Cloudera services for a major insurance company client of Hitachi. We gained world class enterprise data warehouse architecture and analytics experience, with greenfield projects like Jisc/Janet (Kimball star schemas). We work for Dell on their Data Lake, for Hitachi on Data Vaults, and have experience with Anchor modelling and machine learning on Cloudera.	96	**Not shortlisted**	**2 points (3 max)**	Met
Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	A2: Immediate capacity to supply experienced (3>5years) technical skills in Solution and Technical Architecture supported by references of deliveries they have either led or had significant involvement utilising Cloudera technologies.(8.75%)	We have immediate capacity to supply Technical and Solutions Architects with 10+ years experience. They ensure technology selection and software architecture including effective data modelling and data processing techniques, scalable and fault tolerant distributed system design, security and privacy by design with effective deployment strategies.

Texuna staff worked with Hitachi to deliver a fully operational 100TB big data solution using the Data Vault2.0 approach. We delivered an operational beta solution within 120 days and delivered analytical reports demonstrating market segmentation of profitable and loss-making businesses.

The solution was built on Cloudera stack using Parquet/Avro, Pentaho Data Integration, Impala/Hive and Spark. | 99 | **Not shortlisted** | **2 points (3 max)** | Met |
| Department for Work & Pensions | Development of the DWP Child Maintenance Group's Analytic Platform | A3: Immediate capacity to supply experienced (2>5years) technical skills in Data Ingestion, Repository Design and Modelling supported by delivery references they have led or had significant involvement utilising Cloudera technologies.(7.5%) | Texuna has 5+ years experience with bespoke ingestion, recently deploying a Data Lake using Pentaho DI, Apache Spark and Fulme from a range of legacy systems through different connectors. Texuna's ETL/ELT framework uses flexible metadata driven approach to support Kimbal, Data Vault and Anchor modelling. We designed an unstructured text object hub to support 100TB collections, used in UK litigations involving USD100+ million claims. A wide range of document objects and data types are supported for indexing. Our design supports comprehensive search and collaborative document review, using specified keyword/phrase and custodian indexing, technology-assisted review and data preservation. | 97 | **Not shortlisted** | **2 points (3 max)** | Met |
| Department for Work & Pensions | Development of the DWP Child Maintenance Group's Analytic Platform | A4: Immediate capacity to supply experienced (2>5years) technical skills in Data Visualisation supported by references of deliveries they have led or had significant involvement utilising BI Tools.(6%) | Texuna have available staff with 5+ years experience in data visualisation. They have SAPBO, Qlik, Tableau, PowerBI, Quicksight, and Pentaho BI skills. We deliver Trend graphs, Comparative analysis, League table, Word walls etc e.g. we delivered a unified dashboard of 100+ Jisc services to their Members portal via Tableau. For MSB/BUPA we configured Qliksense dashboards to analyse patient survey data including: Individual Analysis, Comparison, Sector Analysis, and Qualitative Analysis. With Universities reporting we support inhouse analysis on SAPBO, Qlikview and PowerBI. Texuna disseminate the National Student Survey analytics on behalf of OfS to all universities via bespoke tools. | 98 | **Not shortlisted** | **2 points (3 max)** | Met |

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	A5: Immediate capacity to supply experienced (2>5years) technical skills in Dev Ops supported by references of deliveries they have either led or had significant involvement utilising Nutanix and Cloudera technologies.(4.75%)	Texuna experienced Dev/Ops staff (5years experience) are immediately available. Texuna engineer full stack enterprise solutions and operate substantial DevOps infrastructure. Our Dev/Ops team run public sector services for DfE, Jisc, Oxford Brookes University, London Metropolitan University, Office for Students, etc. We operate across VMWare, AWS, Azure, Cloudera stacks, monitoring mission critical service component via tools such as Zabbix hosted outside the network 24X7X365. Our BCDR automates infrastructure as code with targets under 60 seconds for full recovery on P1 incidents e.g. for DfE Secure Access IAM system on AWS. We use OSS (Terraform and Ansible) to make cloud infrastructure portable.	100	Not shortlisted	1 point (3 max)	Partially Met: No demonstrable evidence of utilising Nutanix
Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	A6: Have experience (2>5years) in functional, non-functional and automated testing of MI and Analytical solutions in a Big Data environment.(6.25%)	Texuna's have senior testers with 10+ years experience in manual and automated testing. We automate regression testing against all code commits. All test scripts are version controlled via GIT. We rigorously control code and data through continuous deployment to find problems early. 1500+ automatic test ensure data quality in JISC EDW analytical solution. After Unit testing we do API /service tests via Selenium. We use Apache tools for performance testing and OSS for Penetration testing against OWASP guidelines. We use PyTest and Allure to automate data pipeline quality assurance. Bug fixes are incorporated into automated tests.	96	Not shortlisted	2 points (3 max)	Met
Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	A7: Have experience (2>5years) of working with Real / Near Time and Batch Data provision / ingestion technologies from Oracle Databases into Cloudera. (6.25%)	Texuna have extensive big data and ETL / ELT experience through data warehousing. Oracle is often a source for extraction. We have used Oracle Golden Gate Change Data Capture (CDC), Tungsten Replicator CDC for Oracle and real-time/near realtime event streaming via AWS Kinesis for ingestion. For example we worked with Hitachi for a major insurance company to pull up to 100TB from a series of Oracle operational systems for analysis on a Cloudera and Pentaho solution. We also implemented streaming data ingestion using AWS Kinesis for JISC Eduroam as part of pre-processing for a structured enterprise data warehouse.	98	Not shortlisted	2 points (3 max)	Met
Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	B1: Have experience of working with the following Data Visualisation Tools: Power BI, Qlik. (1.5%)	Texuna extensively use Qlik, Tableau, PowerBI and Quicksight to deliver comprehensive dashboards and analytical solutions that use Trend graphs, Comparative analysis, League table, Word wall. Texuna has received excellent feedback from end-users. E.g. we give a unified view of 100+ Jisc services to all its Members and Suppliers, enabling strategic and operational decision making. With MSB and BUPA we configured Qliksense dashboards to analyse patient survey data including: Individual Analysis, Comparison, Sector Analysis, and Qualitative Analysis. We support analysis on PowerBI and Qlikview with Oxford Brookes University.	87	Not shortlisted	2 points (3 max)	Met
Department for Work & Pensions	Development of the DWP Child Maintenance Group's Analytic Platform	B2: Have experience of working within DWP or a comparable organisation within the last 3 years. (1.5%)	Texuna has supplied the Department of Education since 2008 across a number of projects e.g. the database of Educational Establishments in England. This maintains complex Estabishment records including open/closed dates used for Teacher pension calculations, Governor details, sophisticated field level access control and essential information to enable Educationalists and the general public access information about schools. It was relaunched in 2017 as the GIAS service which is used by other DfE services. Texuna has also supplied the DfE with their Single Sign-On Identity and Access Management solution, since 2009. This service integrates with 10+ legacy DfE systems.	97	Not shortlisted	2 points (3 max)	Met
DfE	statistics dissemination platform (alpha and beta)	Experience of taking a user centric approach from inception throughout the project lifecycle	Texuna use a mix of information architecture and design thinking approaches with users, highlighting their points of interaction with a service and map the journey for each persona. For OfS NSS we use multi-stage user research to empathise with real people and understand their goals. We test how different personas respond to design and workflow - verifying assumptions, testing hypotheses and Designers' decisions through prototype reviews after each sprint. For Ofsted we iterated prototype screens based on user testing to highlight specific needs and issues. We also tested accessibility for digital inclusion.	92	Were invited in 2nd round	Not requested	
DfE	statistics dissemination platform (alpha and beta)	Using appropriate technology to provide or build tools to meet a specific service	Texuna's team is comprised of open source specialists and we select vendor tools that support open standards when working on client projects. We look at each requirement to determine if user needs can be delivered more quickly with COTS tools, open source alternatives or with bespoke solutions based on open source libraries. For example, at Jisc we delivered an enterprise infrastructure that combined open source ETL tools with a cloud warehouse SaaS and proprietary vender BI tools to exploit skills available inhouse. Similarly we work with different universities to deliver innovative solutions that mix tools to maximise impact.	98	Were invited in 2nd round	Not requested	
DfE	statistics dissemination platform (alpha and beta)	Experience of working to GDS service assessment standards	Texuna already works with the DfE and successfully passed many needed reviews, external penetration testing, risk and security assessments. These resulted in successful approval for live running for the SA Access and Authentication solution for the Department and the EduBase2 launch and live running. EduBase2 is now re-engineered with RestAPIs for GIAS and we are working with DfE for the GDS LIVE service assessment. Texuna also worked with Ofsted on the Fostering data collection service subject to GDS approval. Texuna is also certified by BSI for security, quality and service standards and hold Cyber Essentials.	95	Were invited in 2nd round	Not requested	
DfE	statistics dissemination platform (alpha and beta)	Experience of building statistical outputs, including data visualisations and/or tabulations	Texuna work with Oxford Brookes University and London Metropolitan University to deliver reporting and analytics as part of larger data warehouse projects. In each case we provide visualisations and tabulations based on existing inhouse tools such as SAP Business Objects, Tableau and Qlikview. We help them experiment with statistical and machine learning models to highlight dominant factors in Learner Analytics so it can be incorporated back into each university's respective Student Experience and Engagement platform. Texuna work with MSB to provide dashboard visualisations through QlikSense cloud for patient survey results on behalf of Bupa and their hospital clients.	98	Were invited in 2nd round	Not requested	
DfE	statistics dissemination platform (alpha and beta)	An awareness of statistics in Government.	Texuna collect and publish annual statutory reports for 15+ years with NCTL (now DfE). This is a fully managed service where Texuna are responsible for the software, workflow, business process (from planning and scheduling through to collection operations) and helpdesk management. We developed a fully automated, repeatable and rigorously quality assured publication pipeline to produce the annual Performance Profiles, and more than a dozen other analysis datasets via different portals for different personas. We intimately understand government statistics and publications, including the need to protect sensitive data and mask small numbers when allowing aggregated data to be sliced and diced.	100	Were invited in 2nd round	Not requested	
DfE	statistics dissemination platform (alpha and beta)	Experience in the dissemination of data on a large scale.	For the National Student Survey we collaborate with Ipsos Mori and OfS to disseminate the annual results securely to the HE sector. We deliver qualitative and quantitative data at a granualr level while maintaining student privacy. We standardise pre-packaged reports for quick downloads and offer realtime ad hoc query service to allow self-service bespoke reporting across 10's of millions of records. We dynamically manipulate data display based on statistics and volume (e.g. masking rules to secure personally identifiable data). Our bespoke tools are well received by the sector and we constantly revisit ideas for improvement through user workgroups when permitted.	100	Were invited in 2nd round	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Schools financial benchmarking service - further development and support	Examples of delivering digital services using an agile team (per the GDS Service Manual) and of passing GDS Service Standard Assessments	Texuna have integrated services and built solutions following the GDS standards and guidelines to the required level of usability and accessibility for many DfE projects in recent years. We delivered Ofsted Fostering Data Collection in 2017-2018 using the agile methodology subject to the GDS Alpha Service Standard. Our DfE work on GIAS successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. EduBase2 is now re-engineered with RestAPIs for GIAS and waiting GDS Live assessment. Similarly we had successful approval to run Secure Access for many years on Eduserv and subsequently on AWS.	100	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Providing a multi-disciplinary team, including user research, service designer, delivery manager, business analyst & technical enterprise architect	Texuna have full-time multi-disciplinary staff who provide project and service continuity to DfE. We can place our team onsite for project duration including: - Delivery Managers to assure successful outcomes; - Project Managers and scrum masters to manage team performance; - Product and Service Managers to manage user priorities and assure outcomes; - Service and User Designers to ideate alternative solutions, coordinate user research and implement feedback; - Business Analysts and User Researchers to develop information architecture, map user journeys, create user stories, test prototypes and curate backlog; - Technical Architect - Lead development and infrastructure, keeping updated with Gov APIs.	100	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Experience in working in and leading an agile team as well as coach, mentor and upskill people in agile techniques and roles to build capability within existing teams	Texuna worked collaboratively onsite with Jisc over 2 years to deliver a greenfield Enterprise Data Warehouse. Texuna mixed lean, agile and kanban techniques with the collaboration tools already in use at Jisc. We conducted over 100 interviews and a dozen workshops during Discovery. We introduced terms, methods and formal roles in Agile Scrum to the in-house team, and delivered upskilling sessions based on the architecture and technologies used and implemented. This included agreement on collaborative coding, the definition of done, and handover of source-code and cloud DevOps to a shared repository. Texuna extended the client team to build internal competencies.	100	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Web development skills including user interface design (front-end), data analysis and data manipulation (back-end) and experience in delivering rapid iterations in response to user insight and priorities set by business	For Ofsted fostering data collection we completed a public Beta within 120 days, going from paper ideas to production-ready code through ongoing sprint show-and-tell with feedback between developers, users and stakeholders. We used Balsamiq and InvisionApp to transform wireframe alternatives into realistic UI designs for App development. Texuna have years of rapid prototyping experience with B2C startups with video (Indeemo), mobile (Checkmate), and webtech (Edukit, Alison. com). Our recent agile data warehouse and big data projects with universities, OfS NSS and Jisc show our skills in data analysis/manipulation and agile delivery based on a prioritisation matrix of rolling waves.	98	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Demonstrable experience in providing full-stack development with a heavy emphasis on data analysis and data manipulation	We work with PHE to record exposure to nuclear materials and patient record information - a combined National Registry for Radiation Workers and UK Nuclear Weapons Test Participants Study database with interfaces. The solution provides full version control, audit trail, business process management and extensive validations with reprogrammable javascript functions to control data feeds in and out of the 50+-year-old radiology epidemiology datasets. It supports aggregated data reporting and data anonymization. Our university and Jisc cloud data warehouse projects deliver full stack solutions for BI and analytics, as does our National Student Survey dissemination portal supporting self-service querying.	98	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Demonstrable experience in using the following key platform components: Microsoft Azure (CosmosDB, App Service for Windows, Azure Search), ASP.NET MVC, ASP.NET Web API, Visual Studio Team Services (VSTS/VSO), GitHub	Texuna staff work with multiple platforms, tools and languages. We work with DfE using VSTO/VSO and GitHub. We deployed GIAS backend on Azure cloud using native tools to ensure continuous integration and continuous deployment to cloud to automatically manage operations alongside OliveJar. We provide robust automation to minimise maintenance and harden services against unplanned Microsoft DB patching and unexpected Redis cache disconnections. Texuna has established expertise in .Net Framework including experienced C# developers that also work across multiple technology stacks, including relational and NoSQL databases (MongoDB, CosmoDB, DynamoDB), as well as Redis caching technology on Azure.	96	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Demonstrate experience in development of automated data processing platform to identify/rectify data issues, including streamlining data collection processes	Texuna work with ETL and Data Warehouses (e.g. Jisc with 140+ regular data pipeline feeds. We have extensive integration and API experience (E.g.Edubase2) as well as migrating data from historic systems-of-record to new cloud-based replacements. We often build thousands of automated data transformation regression tests and data sanity checks. For OfS National Student Survey annual dissemination we created a Reproducible Analytical Pipeline with PDF markdown to automate annual publications. We have 15+ years experience of data collection automation with the Initial Teacher Training collection and automated statutory reporting and benchmarking analytics. We introduced real-time collection with closed-loop valiations for re-submissions.	100	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Experience in reviewing existing information achitecture and making successful recommendations for legacy content	Texuna worked with Jisc across 3 independent business units with many legacy systems on a 2-year enterprise data warehouse project. We conducted a 4-month discovery phase analysing sources, looking at governance, data owners and future directions. We used 'design-thinking' workshop techniques to break down barriers, improve communication, and generate cross team collaboration with paper-based tools. These helped create a common conformed language and shared information architecture across 120+ Jisc services. We also built a business model canvas with senior business leaders to highlight gaps and weaknesses. Texuna also partner with Adhoc Global for IA, UXD and additional content expertise.	99	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Expertise in conducting user research and usability testing to meet any set acceptance criteria (including assisted digital, users with access needs and accessibility audits)	We work proactively to meet acceptance criteria agreed with the project team, evidenced by user feedback. Inclusive Design toolkits are used internally and we test to WC3 AA accessibility. We partner with Adhoc Global to boost our internal user research and user design capabilities. We work with PeopleforResearch.com to independently test for accessibility and digital inclusion. We also use Indeemo.com to remotely scale qualitative research videos and user feedback collection on product design and user experience/usability. For Ofsted we delivered the Fostering Data Collection in 2018 after conducting user research against multiple prototypes and subsequent working system iterations.	98	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Demonstrate how you would work with departmental Technical teams, including identifying and assisting with any areas of potential cost savings or improvements.	Texuna work collaboratively on an open book basis as an extension of the client team, building internal competence and capability. At Jisc we identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives. We support open agile collaboration and allow the combined team to collaborate and share ideas and critiques with shared retrospectives and lessons learned. We are very happy to share our lessons and gotchas with the team in an open dialogue and happily share suggestions and recommendations.	100	Not shortlisted	Not provided	

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DfE	Schools financial benchmarking service - further development and support	Understanding of the schools landscape in England	Texuna work with data for HEIs and schools for many clients including: Edukit - We built SIMS data collection and a wellbeing survey cloud infrastructure for UK primary and secondary school pupils. DfE - GIAS + Edubase2 - working together with OliveJar and Fluent to integrate the legacy schools database to a GDS compliant Single Page App that better meets user needs. Performance Profiles and NQT survey (ITTDMS), HESA returns and DLHE data National Students Survey dissemination for the OfS. DfE - Secure Access for Single Sign-On to national pupil data and a number of other schools systems.	98	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Experience of working within the public sector in the last 3 years	Texuna have 15+ years experience in public sector and government managing sensitive data. Texuna have a deep understanding and practical experience of the needs of government and evolving GDS guidelines. Relevant projects in last 3 years include: *Ofsted Fostering Data Collection *EDW solution for Jisc *Data Warehouse services for Oxford Brookes University and London Metropolitan University *Student Placement system for University College Cork *Historical EPIDOS patient records migration with PHE *ETL provision for MoD *Schools Management Information System data collection for Edukit.org.uk *DfE Getting-Information-About-Schools *NSS results dissemination for OfS *SA Identity and Access Management solution at DfE *ITTDMS and Census data collections for DfE	96	Not shortlisted	Not provided	
DfE	Schools financial benchmarking service - further development and support	Experience of managing and proactively engaging internal stakeholders and building relationships to support digital/business transformation	We build empathy through visual design-thinking workshops and managed communications with feedback channels. We engage team members across disciplines to drive transformation based on shared understanding of quick wins and strategic priorities. We transformed Ofsted with an automated collection process that wow'ed local authority users. We engage directly with institution end-users for OfS to drive innovations like personalised pre-packed downloads and interactive self-service reporting across 10's of millions of records. For Jisc we delivered usage metrics to Members for the first time, giving evidence to support internal decision-making. At DfE we introduced Single Sign-On with Announcements for schools!	98	Not shortlisted	Not provided	
Office for Students (OfS)	Alpha and Beta for a resource to support prospective higher education students with decision making	Experience of delivering digital services using an agile approach and successfully meeting the Digital Service Standard	Texuna embrace, understand and implement the 18 Digital Service Standard principles. Using the prescriptive guidance to help implement and deliver successful agile projects in partnership with our clients. Examples of our public sector agile projects include PHE, DfE, Ofsted, NCTL, STA, OfS. We collaborate with GDS on DfE GIAS to pragmatically assure deliveries and gateway review successes. This work has successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2years. Similarly our Ofsted Fostering Data Collection was based on user-centered, rapidly-prototyped agile sprints and iterative delivery reviews with internal stakeholders and external end users.	100	Were invited in 2nd round	Not mentioned	
Office for Students (OfS)	Alpha and Beta for a resource to support prospective higher education students with decision making	Experience of designing and developing digital services that meet both identified user needs and strategic objectives	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met in the context of the strategic objectives of the enterprise. Texuna's designs typically have multiple end-user stakeholder types, each with different but equally important objectives and measurements of success that span across the business starting from strategic and working its way to operational levels. For example Texuna received excellent feedback from Jisc when designing their first EDW. Texuna conducted 100+ user interviews and workshops using visual, interactive design-thinking techniques to share ideas and ultimately solicit and verify the needs and strategic objectives of all stakeholders.	98	Were invited in 2nd round	Not mentioned	
Office for Students (OfS)	Alpha and Beta for a resource to support prospective higher education students with decision making	Experience of designing services which present complex datasets to users with varying levels of knowledge of and interest in statistical information	Texuna has experience managing complex datasets that are geared towards users with varying levels of knowledge. We have designed and delivered bespoke services through user research focus groups that have been very well received in the education sector including NCTL and OfS. Solutions are designed and optimised to meet exacting user needs. For NCTL, we have published statutory reports for 15+ years with multiple portals each with appropriate tools to interrogate data based on users skills and needs. For OfS NSS we deliver advanced analysis capabilities to institutions for self-service analysis on Student experience and feedback.	96	Were invited in 2nd round	Not mentioned	
Office for Students (OfS)	Alpha and Beta for a resource to support prospective higher education students with decision making	Understanding of student data and HE information	Texuna has 15+years experience in dealing with student data and HE information. We have developed deep understanding while managing and analysing our clients data whether it is from admissions, UCAS clearing, enrolment, attendance, participation, attainment, and destinations after graduation, compare UNISTATS data, curriculum management or work placement. Our understanding of this information is evidenced by our proven track record with our clients who include: *EDW solution- Jisc *Data Warehouse-Oxford Brookes University/ London Metropolitan University *Student Placement system-University College Cork *Schools Management Information System data collection-Edukit.org.uk *NSS results dissemination-OfS *Getting-Information-About-Schools/SA Identity and Access Management solution/ ITTDMS and Census data collections -DfE	97	Were invited in 2nd round	Not mentioned	

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Office for Students (OfS)	Alpha and Beta for a resource to support prospective higher education students with decision making	Evidence of carrying out user research with school leavers (16-18 year olds), mature students and/or teachers	Texuna has carried out extensive user research with school leavers, mature students and teachers. We working with: *OfS and NUS engaging with students at HE level including mature students; *NCTL engaging with teachers at schools in data returns and to deliver GTP applications for PGCEs before it migrated to UCAS; *UCC engaging with students to design a University work placement system; *Indeemo reaching thousands of user segments via mobile qualitative research, longitudinal diary study and mobile ethnography - including school leavers and mature students research with University of East London, University of Southern California, University of Tampere and Cengage Learning.	99	Were invited in 2nd round	Not mentioned	
PHE	Developing a Server Database Management System & Web Portal	Have experience in SQL-Server Database Systems and web portals	Texuna regularly work with SQLServer and web portals with microservices and 3-tier applications. Our Jisc case-study processes 4 million transactions a day. Our experience of extract, transform, load (ETL) and enterprise service bus (ESB) tools allow graphical code generators to illustrate SQL logic to clients. We use SQL stored procedures and functions as part of data cleansing and integration across more than 100 data source systems to create the master data tables. Texuna solutions implement web portals and authentication with RBAC to provide different user personas a customised system views and limit provileges to defined roles.	96	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Identifying functions of existing systems	Texuna has extensive experience reviewing legacy systems and functions across many large and small scale projects. We have used Discovery phase work to analyse, prioritise and specify a backlog of work to be delivered for data-intensive solutions. For example Texuna worked collaboratively onsite with Jisc across 3 independent business units for over 2 years to deliver an integrated Enterprise Data Warehouse. We created a conformed data model to identify and integrate new and existing data systems. We are also working with PHE on the EPIDOS migration to REDMS. Similarly we have re-engineered solutions for OfS National Student Survey results desimination.	100	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Engaging with stakeholders to identify additional requirements	Texuna believes agile engagement with stakeholders is fundamental to deliver successful projects that address real needs. Our design-thinking targets multiple end-user stakeholder types, each with different but equally important objectives and measurements of success that span across the business starting from strategic and through all operational levels. We create hypotheses that check our assumptions and iterate based on user research and feedback. For example Texuna conducted 100+ user interviews and workshops using visual, interactive techniques to share ideas and ultimately solicit and verify the needs and strategic objectives of all stakeholders when working with Jisc to design their EDW.	99	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Data Migration	Texuna regularly migrate historic data from legacy systems. We replace bespoke systems and data structures, sometimes with 10's of millions of records. We pre-plan migration data quality and sanity checks to ensure legacy data behaves as expected before and after redeployment. We have migrated database and software stacks and re-implemented business logic. Examples include: *PHE EPIDOS migration (50+ years of patient records). *DfE Secure Access cluster migration (private cloud to AWS). *DfE GIAS from colocation to Azure with multiple 3rd parties and zero downtime. *OfS National Student Survey annual dissemination with creation of an automated, Reproducible Analytical Pipeline with PDF markdown.	99	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Creating systems flexible enough to allow future development	Texuna embrace, understand and implement GDS 18 Digital Service Standard principles. We create flexible systems and are vendor agnostic, always selecting the most appropriate tools for the task to provide flexibility for future development. We reuse existing licensed products or introduce an open source alternative. All business logic is managed at the application layer. The database provides a queryable persistence container with synchronization/replication and backup to simplify infrastructure portability. For example, we operate the DfE Initial Teacher Training DMS for 15+ years, growing from a single data collection to 10+ collections p.a. with multiple portals supporting changing government policies.	99	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Identifying IT infrastructure requirements from engagement with IT staff	Texuna have a full stack expertise from bare metal engineering to digital service delivery. The Jisc Enterprise Data Warehouse an example of working the full stack. We conducted a source system audit to map the sources, locations, network details, infrastructure and platform stack and key stakeholders (sysadmins, license holders, business users etc.). We built a catalog of source systems and a data ownership framework, creating a RACI matrix and data supply contract template for the business to implement. Our experts focus on value for money, platform independence and project execution. We work with IT staff to engineer scalable DevOps automation.	100	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Identifing new functional requirements via staff engagement	We have 15+ years experience engaging public sector stakeholders building empathy in visual design-thinking workshops to deliver successful projects. Non-technical staff participate in interviews, 'show-and-tell' sessions and prioritisation workshops to identify and confirm problems and priorities. At DfE we work with third-party system suppliers to integrate 10 large mission-critical systems through our SSO Identity and Access Management system. Requiring timely engagement and effective communication via Stakeholder maps, communication and quality plans and timely progress reporting. For Office for Students, over 5 years, we have engaged directly with institution end-users via a portal and workshops to elicit and confirm enhancements.	99	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Delivering discovery phase in a timely and economical way	Texuna's Discovery Phase generates testable hypotheses and produces an actionable Project Execution Plan based on lean startup techniques. We translate the business case strategy into a portfolio backlog of testable User Journeys and User Stories. Scope definition and agile prioritization ensure critical success factors are addressed first. The Plan delivers a roadmap for completing Alpha and Beta phases. For Ofsted Fostering (2018) Texuna Discovery used lean techniques based on paper and Balsamiq wireframes, video composites and hi-fi interactive prototypes on InvisionApp as we learn and ideate hypotheses and engage users. Ofsted was conceptualised and delivered in full within 5 months.	99	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
PHE	Developing a Server Database Management System & Web Portal	Security of computer based data	Texuna is certified by BSI for security, quality and service standards and Cyber Essentials accredited. We regularly pass audits, RMADs assessments and third-party penetration tests. We follow OWASP best practices and we internally penetration test all our solutions. Texuna works with the Department for Education and successfully passed all reviews, external penetration testing, risk and security assessments. Texuna built the Jisc enterprise data warehouse which required data classification and sophisticated obfuscation routines to manage data movement between dev/uat/production environments, with all sensitive data encrypted at rest. We also deliver PHE EPIDOS to securely store and process sensitive medical records.	98	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Accept that they will need to work in an environment with radiation sources	Texuna accept the need to work in an environment with radiation sources. We currently work with PHE in Harwell to deliver the EPIDOS database to hold exposure to nuclear materials and patient record information. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, business process management and extensive input and output validation. Some of our staff have also worked with radioactive materials in the mining industry.	86	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Able to deliver cost effective solutions	Texuna thrive on being able to offer and deliver cost effective solutions for our clients. Our Technical Architects ensure solutions are robust, future-proof, secure and vendor agnostic. We have built, owned and operated our own software solutions and are very effective at engineering out costs and building in automation. We integrate open source components and industry standard tools to provide the most cost-efficient and user-focused processes. We reuse existing licenced products where already available (eg GaaP UI to speed up service delivery) or open source alternatives. All business logic is managed at the application layer to provide database portability.	99	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Understanding of a commercial website for tracking items sent for appraisal	Texuna built the original blood sample analysis ordering and tracking system for The Doctors Lab many years ago. We also have experience with mining applications for geological drilling and sample tracking services used to determine geological models of resources and reserves. We actively work with a small number of startup operations to track local community interaction (CheckMate neighborhood watch), or student wellbeing (school surveys with Edukit.org.uk). We are also the largest independent investor in and technical support partner of Alison.com which provides e-learning services paid certification and accreditation to millions of learners.	92	Not shortlisted	Not provided	
PHE	Developing a Server Database Management System & Web Portal	Experience of working for a Government department.	Texuna is already a supplier to PHE working on the migration of the legacy EPIDOS system to REDMS on SQLServer. Texuna has been a supplier to Government bodies since 2003 we have developed and currently manage the following services for Central Government: * Initial Teacher Training Database Management system for the DfE (NCTL) * GIAS database of educational establishments for the DfE * National Students Survey results site for OfS * Secure Access Identity and Access Management solution for the DfE * Ofsted Fostering Data Collection system * Item Bank system for STA * Enterprise Data warehouse solution for JISC	98	Not shortlisted	Not provided	
DfE	Beta: Get School Experience Service	Proven experience of delivering transactional digital services using an agile approach.	Texuna develops and manages the DfE GIAS solution (https://get-information-schools.service.gov.uk/) since 2008. Initially EduBase, GIAS was reengineered and relaunched in September 2017. Texuna provides the database, validations, capabilities, access control and performance. GIAS is a high transaction system achieving over 1000 concurrent sessions at peak. Department stakeholders, schools and the public have access via a sophisticated access control system. GIAS improvments are delivered in Agile sprints following GDS methodology. Texuna also provide the Initial Teacher Training DMS supporting 1000+ concurrent accesses at peak collection times. It is a key source for reports, parliamentary questions and policy on teacher training.	97	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Experience of designing and developing beta services that meet both identified user needs and strategic objectives and follow GOV.UK design patterns including meet accessibility standards.	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. Texuna's designs typically have multiple end-user stakeholder types, each with different but equally important objectives and success measures, that span the business from strategic to operational. Texuna use design-thinking through a user-centered multi-stage problem-solving process that requires designers to empathize and foresee how different users respond to proposed designs. For Ofsted we iterated prototyped screens using GDS libraries and user-tested regularly during Alpha before entering formalised agile delivery into beta and live. Working with groups of users determined specific needs and issues.	100	Not shortlisted	Not mentioned	weak response
DfE	Beta: Get School Experience Service	Ability to provide a coach and demonstrate your approach to upskilling the product manager.	Texuna worked onsite with Jisc in 2016-17, to establish a data warehouse using agile methodology. Implementation included Jisc staff from kickoff ensuring self-sufficiency after handover. All levels and roles were engaged to build awareness and understanding of agile user-led projects. Texuna was an extension of the in-house team helping to build internal competence and capability. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools through daily standups, regular sprints, reviews and retrospectives. We propose to coach the project manager through close working with our scrum-master and technical team.	99	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Proven experience of prioritising key content and features using metrics, analytics and user feedback - explaining how this will ensure the successful delivery of this service.	We engage multiple stakeholders ASAP with 'show me don't tell me' artefacts to capture and measure real feedback on wireframes, prototypes and working products. We use Indeemo.com mobile-based qualitative ethnography videos to monitor user behaviour in real-life. We recruit a research panel with People For Research if a bigger audience is needed. User Researchers build empathy to understand users motivations and desired outcomes and test our assumptions. Texuna use historic data logs and click analysis with google analytics as evidence on usage and behaviour to generate informed user journey hypothesis for testing. User feedback drives improvements to ensure market acceptance.	100	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Experience of designing services to 'AA' of the W3C WCAG2.0 accessibility standards (including compatible with the latest Assistive Technologies: JAWS, Zoomtext, Dragon NaturallySpeaking, and Dolphin Supernova).	Texuna thinks about accessibility from the start and delivers digital services that as a minimum meets level 'AA' of the W3C WCAG2.0 and work on the most common assistive technologies: screen readers or speech recognition software. We can use the tools cited. Texuna has experience with WAI-ARIA features to improve accessibility where appropriate. We test digital services under various scenarios: CSS is turned off, functionality is keyboard accessible, non-text content has text alternatives, functionality is usable without JavaScript wherever possible. We use auditing tools and test with actual screenreaders like VoiceOver (VO) for Mac/iPhone/iPad and similar tools for Windows and Linux.	100	Not shortlisted	Not mentioned	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Beta: Get School Experience Service	Have experience of delivering high-quality content and information architecture design for complex user journeys across multiple touchpoints that meet user needs.	Texuna collect bottom-up evidence from search history, website analytics and legacy Information architecture(IA), and compare it to top-down collection from user research interviews and workshops. We use card sorting and Show-me Show-me exercises to get users to naturally articulate labels and groups into a taxonomy. We test proposed IA in wireframes and hifi iterations, using feedback to improve navigation, usability, content and design. We use mobile ethnography to capture authentic behaviour and feelings in a multi-media tracking diary. Action research is done as users follow a task workflow and researchers respond users' posts across multiple touchpoints in a journey.	99	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Experience of assessing and mitigating security and privacy issues and ensuring GDPR compliance.	Security and privacy-by-design is fundamental to our approach so that sensitive data is fully protected. Our DfE Access and Authentication solution provides a Single Sign-On gateway to 11 separate systems, including the National Pupil Database. The management system identifies users, controls and protects personal data centrally to streamline GDPR processes and eliminate further personal data collection. Texuna built the Jisc enterprise data warehouse requiring development of data-classification and sophisticated obfuscation routines to manage data movement between dev/uat/production environments, with sensitive data encrypted at rest. We are delivering the PHE solution to securely store sensitive medical records for Nuclear Radiography Epidemiology.	100	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Cyber Essentials certified or equivalent such as ISO27001.	Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009) and Cyber Essentials through IASME. Texuna natively follow the Technology Code of Practice and 18 Digital Service Standards. We work jointly with GDS and DfE on the GIAS project to assure deliveries and gateway review successes. Our developers code securely and follow OWASP best practice. We penetration test all our solutions. We manage security risks with regular reviews, mitigation strategies and owners. Urgent issues impacting Production enviroments are dealt with immediately to minimise downtime, clients kept informed of risks and issues on their own environments.	99	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Understanding of non-functional requirements and experience of building these into a digital service i.e. usability, security, accessibility, interoperability, reliability, maintainability, availability, scalability, portability and compatibility.	Texuna engineers enterprise level solutions that are robust, scalable, easy-to-maintain (using Ansible and Terraform) and offer value-for-money. We are vendor agnostic so that our solutions are easily migrated, e.g. EduBase/GIAS was ported from local hardware to AWS to Azure hosting without issue. We focus effort so that our products are easy-to-use and accessible by adopting GDS styles and user engagement methods. Quality assurance and security is fundamental to our processes. We code to secure development standards and test delivered code at all levels: regression scripts ensure agile sprint releases are validated, penetration and performance testing performed prior to public beta.	100	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	The facility to capture and provide auditing information on user (and automated processing) activity within the system.	Texuna solutions use a metadata-driven framework so that manual and automated processes are auditable and versioned. A full audit trail of data access and will record who accessed the data, when it was accessed (date and time) and what access was made (read, modify, etc). The system uses the Auditing feature to ensure there are clear lines of accountability and ownership for any modifications made to data. The audit trail can help diagnose data issues and monitor integrity by recording all activity on the system. Audit logs are exposed to priviledged 'back-office' users so that data integrity can be verified	99	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Have significant experience of conducting user research and usability testing sessions (on a range of devices, face to face and remote) based on a robust methodology.	We work proactively to meet acceptance criteria agreed with the project team, evidenced by user feedback. Inclusive Design toolkits are used internally and we test to WC3 AA accessibility. We partner with Adhoc Global to boost our internal user research and user design capabilities. We work with PeopleforResearch.com to independently test for accessibility and digital inclusion. We also use Indeemo.com to remotely scale qualitative research videos and user feedback collection on product design and user experience/usability. For Ofsted we delivered the Fostering Data Collection in 2018 after conducting user research against multiple prototypes and subsequent working system iterations.	98	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Have experience of recruiting user research participants (including users with accessibility and assisted digital needs)	Texuna work with People for Research, a specialist panel recruiter with thousands of user participants in the UK. This includes laboratories and participants for accessibility and UX testing. We use Indeemo.com to find freelance user researchers and to provide qualitative research tracking of authentic user behaviour in the real world through remote selfie-video observation. We iterate continuously with regular demonstrations to real users and solicit feedback, using specialist tools (e.g. U of Cambridge Inclusive Design Toolkit) to simulate accessibility issues to keep designs inclusive. GDS also provide panel tools and GOV.UK operate a research panel available for inclusiveness testing.	99	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Successfully meeting the Government Service Standard in previous deliveries.	We have integrated services following the Government Digital Service Standards and guidelines for delivering public sector projects to the required level of usability and accessibility. We collaborate with GDS on DfE GIAS to pragmatically assure deliveries and gateway review successes. This work has successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. GIAS is now in public beta and we are working with the Department for the GDS LIVE service assessment. We had successful approval to run DfE SA (Secure Access) for many years on Eduserv and subsequently on AWS.	98	Not shortlisted	Not mentioned	
DfE	Beta: Get School Experience Service	Recent examples of using the styles, components and patterns in the gov.uk design system.	Texuna used the open source code in the GOV.UK design system and front-end toolkit libraries to deliver a number of projects. e.g. Ofsted Fostering Data Collection in 2017-2018 uses the GDS AngularJS front-end libraries. For DfE SA (Secure Access) Texuna combined a range of OSS libraries into an IAM system with Role Based Access Control. Budget and effort focused on integration of 11 systems and services with SSO (Shibboleth). We implemented secure mail services using at least TLS 2 standards. We have applied the GOV.UK principles and designs in a number of other legacy projects including ItemBank for STA.	100	Not shortlisted	Not mentioned	

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DfE	Beta: Get School Experience Service	Recent experience of using common platforms, specifically Gov.uk Notify.	Texuna adhere to the Digital-by-Default standard for build and implementation, having used GDS patterns and libraries across projects at front-end and back-end. We constantly review published patterns and best practices from GDS and industry thought-leaders and reuse existing tools, libraries and guidance (e.g. Digital Frontend, Notify, Verify and Pay). We are vendor agnostic, open source software experts. We select the most appropriate tools for the task and ensure clients have future portability options to avoid lock-in. We have already worked with GDS to implement GOV.UK services and combined Angular-JS front-end SPA for Ofsted collections using PostgreSQL and Springboot/JHipster.	98	**Not shortlisted**	Not mentioned	weak response
DfE	Beta: Get School Experience Service	Experience of integration with Microsoft Dynamics 365.	Texuna are big data integration and cloud specialists. We work with proprietary SaaS data feeds such as Dynamics 365 and Salesforce, as well as bespoke integration. We achieve this using open source tools (ETL, ESB). Texuna work with proprietary software stacks, cloud services and open source software, creating integration connectors between different sources and targets. At Jisc we integrated 140+ feeds to support cross-service reporting to Jisc Members. SaaS integration included Salesforce and Eventsforce through official APIs. We analysed data quality issues and recommended various changes to the data models to improve quality and governance.	95	**Not shortlisted**	Not mentioned	
DfE	Beta: Get School Experience Service	Experience of building a booking system or reusing code that does this.	Texuna are experienced open-source integrators who use the best-of-breed tools to create best value. Texuna embrace, understand and implement GDS 18 Digital Service Standard principles. We create flexible, vendor agnostic systems, always selecting the most appropriate tools for the task to provide flexibility for future growth. We reuse existing licensed products or introduce an open source alternative. Our familiarity and use of framework libraries enables us to integrate existing open source into our development and delivery. We have a long history of code integration and firmly believe in reuse to delivery value-for-money and rapid prototyping and delivery to market.	99	**Not shortlisted**	Not mentioned	
DfE	Beta: Get School Experience Service	Experience of leading, coaching and upskilling people in agile methods and techniques in order to build internal capability.	Texuna worked onsite with Jisc in Bristol in 2016-17, helping establish a data warehouse team, a governance process and an agile methodology. Project signoff points ensured staff engaged in design and implementation. We introduced terms, methods and formal roles in Agile Scrum to the in-house team, and delivered upskilling sessions based on the methodology, architecture and technologies implemented. This included agreement on collaborative coding, the definition of done, and handover of source-code and cloud DevOps to a shared repository. Texuna acted as an extension of the in-house client team helping to build internal competence and capability.	95	**Not shortlisted**	Not mentioned	
DfE	GIAS - Database Administration and Enhancement	Experience of using GDS Design Principles and Digital Service Standard to deliver public facing digital services, outlining the principles applied, methods adopted and ability to deliver successful outcomes.	Texuna implement the 18 Digital Service Standard principles. We deliver the GIAS backend, collaborating with DfE and OliveJar in passing several GDS reviews, penetration testing and risk/security assessments. We extensively use open source libraries and agile techniques, like 2-week Sprints with user-focused reviews and team retrospectives and backlog grooming. We partner with our clients and real users to empathise and understand needs, creating designs centred on their goals and journeys. We test our assumptions on design through prototypes and beta deliveries together with users in sprint reviews. We similiarly delivered Ofsted Fostering Data Collection following GDS guidelines in 2018.	99	**Won**	Not requested	
DfE	GIAS - Database Administration and Enhancement	Experience of developing software that complies to Government security guidelines or equivalent.	Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed Government audits and RMADs assessments including third-party penetration tests, and we hold Cyber Essentials with IASME. Our developers follow OWASP best practices and we internally penetration test all our solutions. We manage security risks at both project and organisation level and record security incidents with root-cause analysis so we resolve and minimise re-occurrence. Urgent issues impacting Production are immediately addressed to minimise downtime. Texuna delivers projects complying with government standards and guidelines: GIAS, ITTDMS, STA's ItemBank and the Single Sign-On IAM service SA.	100	**Won**	Not requested	
DfE	GIAS - Database Administration and Enhancement	Experience of managing services that utilise MS Azure: Hosting/platform/monitoring, API Management, App Services/web jobs, Service Bus, Resource Manager, APIs (e.g. Azure Graph API), Visual Studio Team Services. Infrastructure Automation, IaaS/PaaS.	Texuna already operate within the DfE Azure environment using all Azure DevOps, tools cited and GitHub - we are comfortable with multiple platforms, tools and languages. For GIAS we developed API messaging standards via YAML and Swagger for front-to-back integration services. We delivered value for money while engineering for automation, ease of management, growth and change. We use Terraform and Ansible for infrastructure automation. Over 2+ years on GIAS we introduced performance and monitoring improvements with automated restarts to assure better system behaviour. We plan to enhance the GIAS API system through a clustered architecture to increase availability and resilience.	100	**Won**	Not requested	
DfE	GIAS - Database Administration and Enhancement	Experience of Microservice Architecture, RESTful API design.	Texuna is a REST API integration expert, having designed and deployed RESTful API services with YAML and Swagger with OliveJar for GIAS Single Page App. Simplified integration code and automatic test scripting gives high quality assurance long term over the REST API. Performance and penetration testing of REST API guarantees security and availability. Our APIs have been in constant use for 2+ years with ongoing optimisation over time. Texuna has also delivered an AWS-based series of microservices for mobile app startup CheckMate, and a microservices architecture for Edukit to scale nightly data uploads from hundreds of UK school SIMS.	99	**Won**	Not requested	
DfE	GIAS - Database Administration and Enhancement	Experience of supporting a 24hr 365 day availability service.	Texuna delivers high availability systems to the DfE where 24/7/365 availability is expected including; GIAS, ITTDMS and SA. We operate across VMWare, AWS and Azure, monitoring mission critical service component via tools such as Zabbix hosted outside the network 24X7X365. Our BCDR automates infrastructure as code with sub 60 second target for full recovery on P1 incidents, achieving this consistently for DfE SA service. We automate to minimise maintenance and harden services against abrupt unexplained behaviours. Continuous Integration and Continuous Delivery is done via Visual Studio, Team Services CI/CD and Azure cloud services, with automated unit testing and deployment.	99	**Won**	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	GIAS - Database Administration and Enhancement	Experience of using Agile/Scrum methodology to iteratively architect/develop high quality digital services to GDS standards.	Texuna actively deliver on GIAS using Scrum agile methodolgy. We develop the back-end services for GIAS and expose an API to a Single Page App frontend according to GDS standards and Service Manual. We participate fully via tools like Redmine, Zoom, Slack and Azure DevOps to manage Sprint planning, prioritisation, backlog grooming and team communications. We use daily standups with sprint reviews and lessons-learned retrospectives to ensure scope is managed, users are continually appraised and can provide feedback. Texuna has delivered over 15 GIAS sprints from start to finish with DfE using Agile Scrum and Kanban DevOps methodologies.	98	Won	Not requested	
DfE	GIAS - Database Administration and Enhancement	Ability to easily scale resources up or down based on project needs and work effectively and collaboratively with other delivery teams to achieve shared goals and objectives.	Texuna has 18+ year track record flexibly resourcing projects from our multi-disciplinary team, redeploying and re-assigning resources as each project needs dictate. We plan resource deployment and engage in cross-training staf to both upskill staff and provide project contingency. We have a track record of meeting deadlines and commitments while retaining longterm project knowhow. When the GIAS project kicked off we engaged in continual collaborative development across a number of sprints with other delivery teams. When the volume of work has fluctuated Texuna has increased or decreased the allocated resources to ensure targets are met without wasting resources.	98	Won	Not requested	
DfE	GIAS - Database Administration and Enhancement	Understanding of the education & schools landscapes.	Texuna work with data in the educational sector for many clients including: * Edukit - a SIMS data collection and a wellbeing survey cloud infrastructure for UK school pupils. * DfE - GIAS with OliveJar and Fluent to integrate the legacy schools database to a GDS compliant Single Page App. * Performance Profiles and NQT survey (ITTDMS). * HESA returns and DLHE data. * National Students Survey dissemination for the OfS. * DfE - Secure Access for SSO. * Oxford Brookes and London Metropolitan University DataWarehouse services.	87	Won	Not requested	
DfE	GIAS - Database Administration and Enhancement	Ability to provide and flex Service Design/UX Designer, Content Designer, User Researcher and Business Analyst resource as required in line with internal capability and capacity.	Texuna drawn from a multi-disciplinary pool of long term employees with additional support from specialist contractors. We can provide contingency and ability to flex project teams as demands dictate while maintaining quality delivery. We sometimes add freelancers into our team when additional skills are required. Resources can be available for short-term periods (e.g. a set number of days) or longer (e.g. across multiple sprints), as needed. We have maintained a minimum team on GIAS since 2008 to accommodate fluctuating DfE requirements, and have service design, UX design, content design, user researcher and business analyst resources available when needed.	98	Won	Not requested	
DfE	GIAS - Database Administration and Enhancement	Experience of delivering high quality content and information architecture design for complex user journeys across multiple touchpoints, that meets user needs.	Texuna collect bottom-up evidence from search history, website analytics and legacy Information architecture(IA), and compare it to top-down collection from user research interviews and workshops. We use card sorting and Show-me Show-me exercises to get users to naturally articulate labels and groups into a taxonomy. We test proposed IA in wireframes and hifi iterations, using feedback to improve navigation, usability, content and design. We use mobile ethnography to capture authentic behaviour and feelings in a multi-media tracking diary. Action research is done as users follow a task workflow and researchers respond users' posts across multiple touchpoints in a journey.	99	Won	Not requested	
DfE	GIAS - Database Administration and Enhancement	Experience of complex database management.	Texuna has 18 years experience deploying innovative database management and collection solutions within the wider UK education sector including GIAS. Database management has been at the core of a range of DfE projects delivered by Texuna, including highly complex tools such as the ITTDMS. We have fully adapted Edubase2 to a more microservices style architecture on Azure SQL PaaS to support GIAS. Texuna engineer full stack enterprise solutions and operate substantial DevOps infrastructure. We run optimised data warehouse and analytics solutions for Jisc, Oxford Brookes University, London Metropolitan University, Office for Students, and hadoop-based big data services elsewhere.	97	Won	Not requested	
DfE	GIAS - Database Administration and Enhancement	Experience of implementing, maintaining and interacting with a variety of IDAM solutions and of developing software that complies to Government security guidelines.	Texuna has extensive IDAM experience. We built the DfE SA tool and worked with other DfE suppliers to ensure it integrated with 11 legacy systems including GIAS where we implemented the integration. We have also worked with the DfE team responsible for DfE Sign-In to ensure that authentication of users for GIAS is maintained (migration was successfully completed at start November). For Jisc we provided secure IAM integration between on-prem Active Directory and AWS cloud services, including AWS-based dashboard services to their Members portal. We have also integrated Role Based Access control for STA ItemBank.	95	Won	Not requested	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Have demonstrable experience in design and development of easy-to-use front-end portals for data submission and accurate data processing and management solutions	Texuna work with GDS framework design principles, Standards and tools. We partner with our clients and their users to empathise and understand needs from 'their shoes', creating a user-centred design with journey outcomes. We test paper designs, working prototypes and beta deliveries with users. For example, Texuna delivered scalable, secure data collection workflows for The National Ofsted Fostering Data Collection project, from Discover to Live in less than 6 months. It was launched successfully in May 2018 to streamline data submission: data collection, validation, immediate data quality reporting and sign-off. Written feedback from Ofsted and end-users was very positive.	99	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Have experience in delivering similar solutions in cloud -based environments and understand the security and management of cloud components.	Texuna are certified AWS cloud-hosting partners and our technical staff ensure security of system architecture. We host solutions in cloud environments and ensure the security and integrity by configuring virtual private cloud structure, using sophisticated encryption to protect data at-rest and in-transit and configuring robust backup and Disaster Recovery processes. We control access to protect data and solution integrity. Texuna built the Jisc enterprise data warehouse on public cloud. This required data classification and sophisticated obfuscation routines to manage data movement between dev/uat/production environments, with all sensitive data encrypted. Enterprise and cloud networks were integrated delivering a heterogenous platform.	98	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Proven experience of providing digital support in an enterprise environment.	Texuna are experienced service providers who have provided enterprise level digital support for clients, audited to the ISO20000-1 standard for ITSM. We also ensuring solutions are clear, easy-to-use and understand and that documentation and additional help, e.g. videos and webinars are available. For example we disseminate the results of the National Student Survey to the HE sector, requiring an efficient communication strategy coupled with intuitive self-service functions. It has greatly increased NSS engagement from 846 active contacts when Texuna took over the service to 2,076 in 2018. Through our end-user support we empathise with users which enhances our functional designs.	100	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Proven experience conducting and documenting user research with a diverse mix of users, iterating project work accordingly	Texuna partner with UXD experts AdhocGlobal for advanced User Research expertise. We use visual, interactive design-thinking techniques in lean startup style workshops with stakeholders and representative users. We generate personas, user journeys, service touchpoints and hypotheses to test. We combine user-led approach with rapid prototyping of increasing fidelity to deliver composite videos of prototype versions. We iterate continuously with regular demonstrations to real users; solicit feedback; use specialist tools to simulate accessibility issues to keep designs inclusive. For Ofsted we delivered the Fostering Data Collection in 2018 after conducting user research against multiple prototypes and subsequent working system iterations.	99	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Proven experience delivering projects using the agile project management methodology. The department doesn't require a specific Agile methodology to be followed.	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. Texuna has delivered over 15 GIAS (GetInformationAboutSchools) Agile sprints with DfE using agile methodology. We participate fully via tools like Zoom, Slack and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation based on user stories and team communications. We use daily standups to manage issues. Bi-weekly sprint reviews and lessons-learned retrospectives ensure scope is managed and that users are continually appraised and can provide feedback. We have formalised our agile processes under ISO9001, ISO20000 and ISO27001 with BSI audits.	99	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Proven track record of delivering projects at speed with clearly identified deliverables and timescales.	Texuna have a track record of on-time delivery in complex projects with tight timeframes. Our project at Jisc implemented an agile Enterprise Data Warehouse from Discovery to Live with agreed 90 day delivery timeboxes. For Ofsted Fostering (2018) Texuna used lean techniques based on paper and Axure wireframes, video composites and hi-fi interactive prototypes as we learn and ideate hypotheses and engage users. Alpha delivery included monthly show-and-tells to demonstrate progress to the Project Board. For example Ofsted was conceptualised and delivered in full within 5 months ready for the 2018 collection period. Feedback from users was excellent.	98	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrable evidence of excellent planning, coordination, communication and project management skills.	We have blended Prince2 and the agile sprinting methodology for project management over the last 3 years. We use an interactive, backlog based collaborative development methodology with visual tools and workgroup techniques. For example Texuna operated the NCTL data collection for 15+ years with full-lifecycle design and deployment and a proven track record of on-time and on-budget delivery using Agile/Scrum methods. Texuna has proven skills in translating business requirements into innovative and creative solutions through Stakeholder mapping and communication planning. Strong communication skills and strategic thinking puts the business vision in the centre of our Disciplined Agile Delivery methodology.	99	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrable evidence of incorporating latest technologies to enhance product specifications, resulting in increased functionality and improved user experience.	Texuna work across legacy and future technologies to deliver value-for-money, platform independence and development execution, and embrace the GDS open approach. We keep up-to-date with the latest technologies with our startup projects and migrate lessons learned around user experience and innovation to our government work. Our start-up tech experience includes: *CheckMate: https://checkmate.ie (cloud-native, responsive, Single Page App for neighbourhoodwatch) *Shout: https://shout-app.com (social, location-based mobile app service) *Tweakaboo: https://www.tweekaboo.com (mobile native app closed social network) *Indeemo: http://indeemo.com/contact/ (elastic services for mobile selfie-video ethnographic research) *EduKit: https://data.edukit.org.uk (serverless lambdas for data collection) *eDisc: https://edisc-matrix.anpoo.com (ultra-scalable container-based unstructured document object discovery and disclosure)	100	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrable evidence of a robust risk management process, including risk identification, mitigations and governance.	Texuna actively manages information security risks for all information assets owned or managed by Texuna. The risk management approach is compliant with ISO 27001 and audited by BSI within our ISO certifications. Proactive risk monitoring and mitigation strategies are recorded in a risk log. Regular risk review meetings are held between the standards officers within Texuna, so that all risks are identified and managed effectively. Project level risks are managed by the project team and follow similar processes of identification, review and mitigation within our project delivery methodology. Our CEO is actively engaged in our risk management strategies.	98	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrable evidence of managing personal, commercially and/or politically sensitive data in line with security requirements and data protection legislation.	Texuna is registered as Data Controller with the Information Commissioner's Office. and certified to ISO 27001 for Information Security by BSI for all company operations. Security and privacy-by-design is fundamental to our approach. All staff are trained and contractually bound to processes for security and GDPR compliance. Our DfE Access and Authentication solution provides a Single Sign-On gateway to 11 systems, including the National Pupil Database. It identifies users, controls and protects personal data centrally to streamline GDPR processes and eliminate further personal data collection. We deliver EPIDOS to securely capture, store and process sensitive medical records for Radiography Epidemiology at PHE.	100	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrate evidence of Cyber Essentials/Essentials Plus certification in relation to the processing of information. When were you last assessed against this standard and were you successfully awarded a certificate	Texuna were awarded Cyber Essentials and passed compliance with the IASME Governance Standard in May 2018. We also hold ISO 27001 and are audited by BSI.\n\nA copy of our certificate is available on request.	33	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrate understanding and ability to deliver digital services/products to the Government Digital Service standards.	Texuna natively understand the 18 GDS delivery principles. We worked with Digital-by-Default and Digital Service Standards jointly with GDS and DfE on the Get Information About Schools (GIAS) project to pragmatically assure deliveries and gateway review successes.\n\nWe delivered Ofsted Fostering Data Collection in 2017-2018 using agile methodology subject to the GDS Alpha Service Standard.\n\nOur DfE work on GIAS successfully passed several GDS reviews. GIAS is now in public beta and we work with the Department for the GDS LIVE service assessment.\n\nWe run DfE SA (Secure Access IAM) initially on Eduserv cloud before transitioning to AWS public cloud.	99	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	ISSC1 Statement of Assurance (SoA) via link https://docs.google.com/document/d/1ntXfhq0NgyPyyGM30QDsHp8u1Z9dmbJFUqTXv83CZV4/edit	Texuna comply with the ISSC1 Statement of Assurance (SoA) and commit to submitting a completed self-assessment questionnaire to demonstrate compliance when requested.	22	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrate evidence of ISO 27001 certification or equivalent (or other industry-recognised standard) in relation to the processing of information.	Texuna is certified by BSI for ISO 27001:2013 (Information Security) and has been continually certified across all our business and operations since 2009. We successfully recertified in October 2018 for a further 3 years with annual assessments to be completed.\n\nTexuna aligns information security to our corporate strategy giving it a top priority. Our developers code securely and follow OWASP best practice. We pentest all our solutions. We manage security risks with regular reviews, mitigation strategies and owners.\n\nTexuna delivers projects complying with government standards and guidelines: GIAS, ITTDMS, STA's ItemBank and the Single Sign-On IAM service SA.	98	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrable evidence of successfully managing/assisting in delivering IT projects within public sector organisations.	Texuna have 15+years public sector experience managing sensitive data, with deep understanding and practical experience of government needs.\n\nTexuna delivered Ofsted Fostering Data Collection in Q1-2018, and DfE GIAS project in 2017 using agile methodology. We work tirelessly to put users and data first with technology as an enabler.\n\nOther relevant projects include:\n*Data Warehouse solutions for Jisc and several universities\n*Historical EPIDOS patient records migration with PHE\n*NSS results dissemination for OfS\n*SA IAM solution at DfE\n*ITTDMS and Census data collections for DfE (15+ years)\n\nAll Texuna pubic sector implementations have passed gateway standards reviews and deemed fit-for-purpose.	93	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrable evidence of successfully using Google Cloud Platform.	Texuna uses AWS, Azure and Google cloud tools as well as open source cloud tools to host our services so that they are portable between clouds. We are equally comfortable delivering mission critical systems on Google, Azure, AWS or other private cloud hosting services. We work with our clients to ensure their solution is fit-for-purpose and conforms with enterprise guidelines and GDS. We also use Google tools extensively in-house to manage our own services and storage. Our full stack expertise includes defining infastructure as code, configuring network access and firewalls, IDAM security, containerisation, virtualisation and resource management, and IaaS/PaaS design.	100	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrable evidence of using open source database.	As open source software experts we support open standards. Being vendor agnostic we select the most appropriate tools for the task and ensure clients have future portability options to avoid lock-in. Our teams deliver in a number of open source databases including MySql, PostgreSQL and MongoDB. Our front-end team have produced GDS-compliant solutions using Open Source databases combined with front end tools like GDS AngularJS libraries, JQuery, SASS mixins and other javascript libraries.\n\nWe work with DfE, Jisc and several Universities with data sources and deployed solutions based on SQLServer, Postgres, Oracle, cloud services and proprietary SaaS.	97	Not shortlisted	Not provided	
Department for Transport (DfT)	VFM Data Collection and Management System (Alpha/Beta)	Demonstrate evidence of using NCSC's Security Design Principles for Digital Services (https://www.ncsc.gov.uk/guidance/security-design-principles-digital-services-main)	Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed Government audits and RMADs assessments including third-party penetration tests, and we hold Cyber Essentials with IASME. Our developers follow OWASP best practices and we internally penetration test all our solutions. We manage security risks at both project and organisation level and record security incidents with root-cause analysis so we resolve and minimise re-occurrence. Urgent issues impacting Production are immediately addressed to minimise downtime.\n\nTexuna delivers projects complying with government standards and guidelines: GIAS, ITTDMS, STA's ItemBank and the Single Sign-On IAM service SA.	100	Not shortlisted	Not provided	

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STA - DfE	Assessment Service (alpha)	Have experience in delivering similar solutions in cloud -based environments and understand the security and management of cloud components.	Texuna are certified cloud-hosting partners and manage our DfE GIAS solution in DfE Azure cloud. We ensure the security and integrity by configuring virtual private cloud structure, using sophisticated encryption to protect data at-rest and in-transit and configuring robust backup and Disaster Recovery processes. We control access to protect data and solution integrity. Texuna built the Jisc enterprise data warehouse on public cloud. This required data classification and sophisticated obfuscation routines to manage data movement between dev/uat/production environments, with all sensitive data encrypted. Enterprise and cloud networks were integrated delivering a heterogenous platform. We use synthpop to create synthetic datasets.	99	Not shortlisted	2 points (3 max)	strong response
STA - DfE	Assessment Service (alpha)	Proven experience delivering projects using the agile project management methodology	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. Texuna has delivered over 15 GIAS (GetInformationAboutSchools) Agile sprints with DfE using agile methodology. We participate fully via tools like Zoom, Slack and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation based on user stories and team communications. We use daily standups to manage issues. Bi-weekly sprint reviews and lessons-learned retrospectives ensure scope is managed and that users are continually appraised and can provide feedback. We have formalised our agile processes under ISO9001, ISO20000 and ISO27001 with BSI audits.	99	Not shortlisted	2 points (3 max)	strong response
STA - DfE	Assessment Service (alpha)	Proven track record of delivering projects at speed with clearly identified deliverables and timescales.	Texuna have a track record of on-time delivery in complex projects with tight timeframes. Our project at Jisc implemented an Enterprise Data Warehouse from Discovery to Live using Agile with agreed 90-day delivery timeboxes. For Ofsted Fostering Data Collection (2018) Texuna used lean techniques based on paper and Axure wireframes, video composites and hi-fi interactive prototypes to learn, ideate hypotheses and engage users. Alpha delivery included monthly show-and-tells to demonstrate progress to the Project Board. Ofsted was conceptualised and delivered in-full within 5 months ready for the 2018 collection period. Feedback from users was excellent.	95	Not shortlisted	2 points (3 max)	strong response
STA - DfE	Assessment Service (alpha)	Demonstrable evidence of excellent planning, coordination, communication and project management skills.	We have blended Prince2 and the agile sprinting methodology for project management over the last 3 years. We use interactive, backlog based collaborative development methodology with visual tools and workgroup techniques. Texuna operated the NCTL data collection for 15+ years with full-lifecycle design, 10+ annual sprint deployments, a proven track record of on-time and on-budget delivery using Agile/Scrum methods. Texuna has proven skills in translating business requirements into innovative and creative solutions through Stakeholder mapping and communication planning. Strong communication skills and strategic thinking puts the business vision in the centre of our Disciplined Agile Delivery methodology.	97	Not shortlisted	1 point (3 max)	poor response
STA - DfE	Assessment Service (alpha)	Demonstrable evidence of incorporating latest technologies to enhance product specifications, resulting in increased functionality and improved user experience.	Texuna work across legacy and future technologies to deliver value-for-money, platform independence and development execution, and embrace the GDS open approach. We keep up-to-date with the latest technologies with our startup projects and migrate lessons learned around user experience and innovation to our government work. Our start-up tech experience includes: *CheckMate: https://checkmate.ie (cloud-native, responsive, Single Page App for neighbourhoodwatch) *Shout: https://shout-app.com (social, location-based mobile app service) *Tweakaboo: https://www.tweekaboo.com (mobile native app closed social network) *Indeemo: http://indeemo.com/contact/ (elastic services for mobile selfie-video ethnographic research) *EduKit: https://data.edukit.org.uk (serverless lambdas for data collection) *eDisc: https://edisc-matrix.anpoo.com (ultra-scalable container-based unstructured document object discovery and disclosure)	100	Not shortlisted	1 point (3 max)	poor response
STA - DfE	Assessment Service (alpha)	Demonstrable evidence of a robust risk management process, including risk identification, mitigations and governance.	Texuna actively manages information security risks for all information assets owned or managed by Texuna. The risk management approach is compliant with ISO 27001 and audited by BSI within our ISO certifications. Proactive risk monitoring and mitigation strategies are recorded in a risk log. Regular risk review meetings are held between the standards officers within Texuna, so that all risks are identified and managed effectively. Project level risks are managed by the project team and follow similar processes of identification, review and mitigation within our project delivery methodology. Our CEO is actively engaged in our risk management strategies.	98	Not shortlisted	1 point (3 max)	poor response
STA - DfE	Assessment Service (alpha)	Demonstrate understanding and ability to deliver digital services/products to the Government Digital Service standards.	Texuna follow the 18 GDS delivery principles, coding in the open, onsite as an extended team. We are Digital-by-Default and work with Digital Service Standards with GDS and DfE on the Get Information About Schools (GIAS) for agile delivery and gateway review successes. GIAS already successfully passed several GDS reviews. We are now in public beta, working toward the GDS LIVE service assessment. We run DfE SA (Secure Access IAM) on open source libraries and successfully ported across different cloud providers. We delivered an agile Ofsted Fostering Data Collection in 2017-2018 based on GDS frontend libraries and opensource ETL tools.	100	Not shortlisted	2 points (3 max)	strong response
STA - DfE	Assessment Service (alpha)	Have experience of delivering high quality content and information architecture design for complex user journeys across multiple touchpoints, that meets user needs.	Texuna collect bottom-up evidence from search history, website analytics and legacy Information architecture(IA), and compare it to top-down collection from user research interviews and workshops. We use card sorting and Show-me Show-me exercises to get users to naturally articulate labels and groups into a taxonomy. We test proposed IA in wireframes and hifi iterations, using feedback to improve navigation, usability, content and design. We use mobile ethnography to capture authentic behaviour and feelings in a multi-media tracking diary. Action research is done as users follow a task workflow and researchers respond users' posts across multiple touchpoints in a journey.	99	Not shortlisted	2 points (3 max)	strong response

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
STA - DfE	Assessment Service (alpha)	Demonstrate experience of designing digital assessment services.	Texuna delivers the STA Itembank, a bank of assessment questions for primary SATS and a foundation-stone for digital assessment services. Role Based Access contol with 2nd Factor Authentication help maximise security. Texuna worked with University College Cork Edtech Research Centre to evaluate Rogo (eAssessment) and Kuali (curriculum management) - both open source projects. Texuna work with Alison.com to deliver cert and diploma delivery and assessments - originally via Moodle and subsequently a bespoke service. Alison.com has 12+M registered learners and 1+M completed assessments. Our EDW projects at Oxford Brooks and London Metropolitan universities include learner analytics from Moodle and Blackboard.	100	Not shortlisted	2 points (3 max)	strong response
STA - DfE	Assessment Service (alpha)	Demonstrate experience of managing, proactively engaging diverse range of internal/ external (public sector) stakeholders, building relationships to support digital transformation, the efficient and effective delivery of digitally enabled public services.	We have 15+ years experience engaging public sector stakeholders building empathy in visual design-thinking workshops to deliver successful projects. Non-technical staff participates in interviews, 'show-and-tell' sessions and prioritization workshops to identify and confirm problems and priorities. At DfE we work with third-party system suppliers to integrate 10 large mission-critical systems through our SSO Identity and Access Management system. Requiring timely engagement and effective communication via Stakeholder maps, communication and quality plans and progress reporting. For Office for Students, over 5 years, we have engaged directly with institution end-users via a portal and workshops to elicit and confirm enhancements.	98	Not shortlisted	Nice-to-have skills or experience	
STA - DfE	Assessment Service (alpha)	Demonstrate experience of delivering national services for UK government departments and/or public bodies.	Texuna has been a supplier to Government bodies since 2003 delivering the following services for Central Government and public bodies: * GIAS database of national educational establishments for the DfE * National Students Survey results site for OfS * Secure Access Identity and Access Management solution for the DfE * Ofsted national Fostering Data Collection system * Item Bank system for STA * Enterprise Data warehouse solutions for JISC, OBU, LMU Texuna also operated the national Initial Teacher Training Database Management System for 15 years (DfE-NCTL) and LLUK SIR collection for the FE / ACL sector.	96	Not shortlisted	Nice-to-have skills or experience	
STA - DfE	Assessment Service (alpha)	Demonstrate knowledge and experience of working in the English state schools/statutory education sector.	Texuna work with data in the schools and statutory educational sector for clients including: * Edukit - a SIMS data collection and a wellbeing survey cloud infrastructure for UK school pupils. * DfE - GIAS with OliveJar and Fluent to integrate the legacy schools database to a GDS compliant Single Page App. * STA Itembank to manage SATS exam papers In the higher education sector * Performance Profiles and NQT survey (ITTDMS). * HESA returns and DLHE data. * National Students Survey dissemination for the OfS. * DfE - SecureAccess (Single Sign-On for all school headteachers and delegates). * Oxford Brookes and London Metropolitan University Data Warehouse services.	100	Not shortlisted	Nice-to-have skills or experience	
DfE	Capital Directorate Systems and Data Discovery	Examples of delivering digital services using an agile team (per the GDS Service Manual) and meet the Digital Service Standards & Technology Code of Practice	Texuna have 5+ years working with the 18 principles for delivery in the GDS service standard, delivering Digital-by-Default according to Digital Service Standards for many successful public sector projects. For example we collaborate with GDS on the DfE GIAS project for agile functional deliveries resulting in successful gateway reviews. Our Ofsted Fostering Data Collection went live in May18, based on user-centered and rapidly prototyped agile sprints and delivery reviews. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We partner with our clients to ensure stakeholders are fully involved daily throughout the project.	97	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Demonstrate experience of passing GDS Service Standard Assessments	Texuna have integrated services and built solutions following GDS standards and guidelines to the required level of usability and accessibility for many DfE projects in recent years. We delivered Ofsted Fostering Data Collection in 2017-2018 using the agile methodology subject to the GDS Alpha Service Standard. Our DfE GIAS work successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. EduBase2 is now re-engineered with RestAPIs for GIAS and waiting GDS Live assessment. Similarly we had successful approval to operate cloud portable Secure Access for many years on Eduserv and subsequently on AWS.	98	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Recent and demonstrable experience in delivering evidence-based research to inform a user-centred design, focus on user needs (including accessibility), end-to-end user journeys, motivations and goals	Texuna use Design thinking and Lean methods to ensure Discovery and subsequent phases are user-led and evidence-based. We use feedback to inform User Journey mapping and User Stories; multi-stage user research to empathise with real people, understand their goals, test how different personas respond to workflow and design that is inclusive and accessible. For example on Ofsted we iterated prototype screens based on user testing to highlight specific needs and issues while also testing accessibility for digital inclusion. Wireframes were tested with stakeholders and users via Axure and Balsamiq, with iterative prototypes built on GDS libraries with Swagger-based YAML stubs.	99	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Provide a multi-disciplinary team, including user research, service designer, delivery manager and business analyst	Texuna combine several GDS-experienced freelancers with full-time multi-disciplinary staff, providing ongoing project continuity onsite, including: -Delivery Managers to assure successful outcomes; -Project Managers and scrum masters to manage team performance; -Product and Service Managers to manage user priorities and assure outcomes; -Service and User Designers to ideate alternative solutions, coordinate user research and implement feedback; -Business Analysts and User Researchers to develop information architecture, map user journeys, create user stories, test prototypes and curate backlog; -Technical Architect - Lead development and infrastructure, most advantageous tool selection incl Gov.uk apps. - DevOps - for secure implementation and ongoing operations.	98	Not shortlisted	2 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Capital Directorate Systems and Data Discovery	Recent demonstrable experience of expertise in identifying, designing and developing ways of strategic alignment of technical architecture and design to meet clients' business, digital/technology drivers and objectives	Texuna adopt Disciplined Agile Delivery to align business and IT drivers within organisational context. We continuously align enterprise architecture to stakeholder needs spanning the business (using strategic top-down and operational bottom-up approach). Texuna received excellent feedback from Jisc when implementing their Enterprise Data Warehouse. We conducted 100+ interviews and visual workshops using interactive design-thinking techniques to share ideas, solicit and verify needs and strategic objectives of all stakeholders. Our Discovery phase coded architecture Spikes to deliver a reference architecture, establish interfaces, architectural runway and a prioritised portfolio of projects across Rolling Wave timeboxes of Epics and Capabilities controlled under Prince2.	100	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Recent and demonstrable in-depth experience of evolving the most appropriate solution/data/technical architecture to meet user's requirements, fully integrating across different environments and technologies	Texuna created an Enterprise Data Warehouse (EDW) with 140+ heterogeneous feeds from proprietary cloud SaaS and inhouse systems for Jisc. We combined structured and unstructured data into a coherent picture for BI insights and service usage (parsing log data and Google Analytics). We use Kimball enterprise business matrix to flexibly deliver a coherent story to users with conformed dimensions. Similarly we work with several Universities delivering EDW within agile rolling waves. We collaborate with architecture owners through Spikes, using infrastructure as code to demo feasibility of hybrid, portable solutions that combine existing software licences and tools with multi-cloud SaaS.	99	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Proven experience of defining data transformation and migration strategies and architecture for data collection and manipulation solutions	Texuna has 18+ years collection and management experience across education and financial services. We have focused on open source options for ETL (Talend, Pentaho) and big data (Hadoop, Impala, Spark). We work with customers existing tools e.g. Alteryx for data transformation, integration and report generation for DellEMC product genetic fingerprinting) and SSIS (NCTL ITTDMS). We have built highly automated and implemented realtime collection and reporting solutions from open source libraries for NCTL ITTDMS and historically for Lifelong Learning UK. More recently we delivered Ofsted Fostering Collection using GDS frontend toolkit, Pentaho ETL validations and scalable message queues.	97	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Have experience of setting up and use of analytics to inform service development and iterative design of services	Texuna's Analysts and Researchers look at evidence from pre-existing artefacts and historic audit trails to generate user hypotheses. We implement weblog and system log processing through syslog, Splunk, and/or Google Analytics to understand past usage behaviours. Our bottom-up data analysis helps us understand current and future data integration and analytics requirements e.g. we have re-engineered requirements for Jisc and University data warehouses from legacy artefacts. For example at Jisc Digital Resources we use elasticsearch on top of logstash as a generic monitoring and aggregation service over a hetrogenous portfolio of bespoke digital content services with anonymised, session page-level collection.	99	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Can communicate effectively engaging a wide set of users across businesses, capture and make sense of user journeys and effectively communicate the results widely, including senior-level audiences	Our sector work gives us insight to Departmental goals and objectives. Our staff are excellent communicators because of strong stakeholder collaboration and focus on empathy-building. We partner and engage with all business levels through people-focused workshops, user research, surveys and written communications. Analyst researchers test assumptions with low fidelity people-based journey maps, create user stories, prioritising them into backlogs, visually liaising with senior stakeholders through Reach-Imact-Confidence-Effort matrix. We use a "show-not-tell philosophy", constantly engage real users through sprint reviews, and run transparent team retrospectives. Our CEO stays involved to ensure clear communication with senior leaders and everyday users alike.	99	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Experience in leading an agile team as well as to coach, mentor and upskill people in agile techniques and roles to build capability within existing teams	Texuna worked collaboratively onsite with Jisc over 2 years to deliver a greenfield Enterprise Data Warehouse. Texuna mixed lean, agile and kanban techniques with the collaboration tools already in use at Jisc. We conducted over 100 interviews and a dozen workshops during Discovery. We introduced terms, methods and formal roles in Agile Scrum to the in-house team, and delivered upskilling sessions based on the architecture and technologies used and implemented. This included establishing collaborative coding, the definition of done, source-code CI/CD through cloud DevOps to a shared repository build internal Jisc competencies and ongoing disciplined agile delivery.	97	Not shortlisted	1 point (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Be agnostic of any particular software, enabling us to consider a range of options to meet user need	Our Technical Architects work with client Architecture Owners to ensure solutions are robust, future-proof, secure and vendor agnostic. We specialise on the integration of open source libraries, open standards and industry standard proprietary tools to find the fastest, most cost-efficient and user-centred solutions. We reuse existing investments in licenced products, only finding replacements if business benefits justify. We implement architecture across heterogeneous inhouse/cloud environments, mixing proprietary SaaS and traditional RDBMS vendors through our various data warehouse projects with Jisc, OBU and LMU. Our metadata driven approach includes delivering open source data governance wiki tools that integrate and share data lineage.	100	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Experience of developing design patterns and architecture routes that can be re-used for other services	Texuna have deep practical experience designing and implementing reusable design patterns from open source libraries. For example, we maintained and reused a Task List pattern for 15+ years for many projects: NCTL (ITTDMS); Staff Individualised Records (LLUK); the Fostering collection (Ofsted). For Ofsted we used GDS Single Page App (SPA) libraries with API to eliminate server-side rendering. Similarly Dept for Finance (Ireland) reused a range of GDS frontend design patterns and libraries in a SPA. Texuna extended these GDS patterns for handling unstructured data, document viewing, online annotation and redaction. We also re-use Infrastructure as Code with portable Terraform scripts.	100	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Demonstrate experience of managing and proactively engaging internal stakeholders and building relationships to support digital/business transformation	We build empathy through visual design-thinking workshops and wider managed communications with feedback channels. We engage colleagues across disciplines to drive transformation based on establishing a shared understanding of pains and opportunities, providing tools to help agree on quick wins and strategic priorities. We delivered member usage metrics to Jisc management for the first time, delivering evidence to support significant internal investment decisions. We transformed Ofsted with an automated collection process that wow'ed local authority users. We engage directly with institution end-users for OfS to drive innovations like personalised pre-packed repreducible analytics with interactive self-service reporting (10's millions of records).	100	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Experience within the last 12 months in the provision of Business Analyst (BA) services responsible for wireframe mapping of the "as-is" and "to-be" customer journeys	Texuna work with University College Cork mapping as-is and to-be processes for a student placement solution. We collaborate through visual, interactive workshops focused on different personas and customer journeys incorporating events between Student, College Administrator, and placement Company. The journey maps were created on paper/post-its and ongoing UI/UX design prototypes are iterated. The team switches between Axure for wireframing to research assumptions, and coding sprints for regular user feedback. On other projects we use Invisionapp (Checkmate), Balsamiq (Ofsted Fostering prototype feedback from local authority users) or distribute screenshots and video composites of mockups for feedback on enhancements to legacy projects.	100	Not shortlisted	2 points (3 max)	
DfE	Capital Directorate Systems and Data Discovery	Recent and demonstrable experience in defining sets of functional and non-functional requirements and criteria that can be used to inform tool selection	Texuna combines OSS, vendor proprietary tools, databases, cloud infrastructure and software services for clients including PHE, DfE, Ofsted, STA, OfS, and universities including LMU, OBU and UCC. We partner with client Architecture Owner to optimise solutions. We use an evaluation framework to consider aspects of alternative solutions complexity as a matrix against confidence level of effort involved in delivering any solution. We consider data quality and integration, system standardisation and available knowhow, creating and securing interfaces between microservices and tools, against the costs, effort and skills needed to deploy. We code architecture Spikes to confirm feasibility before making recommendations.	99	Not shortlisted	1 point (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Recent and demonstrable experience of managing and delivering discovery projects, meeting all requirements and successfully delivering outcomes within specified timescales. (12)	Texuna has consistent track record of meeting delivery timescales. Discovery Phase generates testable hypotheses and produces actionable Project Execution Plan based on lean startup techniques. We translate business case strategy into portfolio backlog of testable User Journeys and User Stories. Scope definition and agile prioritisation ensure critical success factors are addressed first. Plan delivers roadmap for completing Alpha and Beta phases. Ofsted (2018) Discovery used lean techniques based on paper and Axure wireframes, video composites and hi-fi interactive prototypes on InvisionApp as we learn and ideate hypotheses and engage users. Ofsted was conceptualised and delivered in full within 5months.	98	Not shortlisted	1 point (3 max)	Your response did not answer the requirement in its entirety, with part of the criteria not covered in adequate detail. Whilst the response addressed most of the requirement to a satisfactory standard, the evaluation panel identified some omissions that led them to agree that overall the response did not meet the requirement in full. The response lacked evidence on what was achieved and whether delivering in five months had successfully met the timescale target.
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Recent demonstrable experience delivering discovery agile projects according to Government Digital Standards (GDS), including GDS Service Design Manual; the Digital Service Standard Assessment; Technology Code of Practice; wider industry standards.(5)	Texuna natively understand the Technology Code of Practice and 18 Digital Service Standards working with design patterns and accessibility standards through GDS Frontend libraries. Texuna have integrated services and built solutions following the GDS standards and guidelines for many DfE projects in recent years. We work jointly with GDS and DfE on the GIAS project to assure deliveries and gateway review successes. Our DfE work on GIAS successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. EduBase2 is now re-engineered with RestAPIs for GIAS and waiting GDS Live assessment.	96	Not shortlisted	1 point (3 max)	Your response did not answer the requirement in its entirety, with part of the criteria not covered in adequate detail. Whilst the response addressed most of the requirement to a satisfactory standard, the evaluation panel identified some omissions that led them to agree that overall the response did not meet the requirement in full. The response asserted that your organisation had delivered to GDS however, the response didn't provide any evidence to confirm that you had passed GDS for the example provided nor did it provide any detail of the standards focussed on within the GDS reviews.
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Recent and demonstrable experience in delivering evidence-based research to inform a user-centred design, focus on user needs (including accessibility), end-to-end user journeys, motivations and goals. (3)	Texuna use Design thinking and Lean methods to ensure Discovery and subsequent phases are user-led and evidence-based. We use feedback to inform User Journey mapping and User Stories; multi-stage user research to empathise with real people, understand their goals, test how different personas respond to workflow and design that is inclusive and accessible. For example on Ofsted we iterated prototype screens based on user testing to highlight specific needs and issues while also testing accessibility for digital inclusion. Wireframes were tested with stakeholders and users via Axure and Balsamiq, with iterative prototypes built on GDS libraries with Swagger-based YAML stubs.	99	Not shortlisted	2 points (3 max)	The response answered the requirement in full, addressing the criteria to a satisfactory standard. Appropriate evidence was provided to support the response and the evaluation panel felt the level of detail demonstrated that the response covered all key elements of the criteria. The evaluation panel did not identify any concerns or shortcomings with the response and agreed that it met the requirement in full.
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Recent and demonstrable experience of understanding digital services that meet identified user needs and business objectives. (3)	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met in the context of the strategic objectives of the enterprise. Texuna's designs typically have multiple end-user stakeholder types, each with different but equally important objectives and measurements of success that span across the business starting from strategic and working its way to operational levels. For example Texuna received excellent feedback from Jisc when designing their first EDW. Texuna conducted 100+ user interviews and workshops using visual, interactive design-thinking techniques to share ideas and ultimately solicit and verify the needs and strategic objectives of all stakeholders.	96	Not shortlisted	2 points (3 max)	The response answered the requirement in full, addressing the criteria to a satisfactory standard. Appropriate evidence was provided to support the response and the evaluation panel felt the level of detail demonstrated that the response covered all key elements of the criteria. The evaluation panel did not identify any concerns or shortcomings with the response and agreed that it met the requirement in full.
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Recent and demonstrable experience in defining sets of functional and non-functional requirements and criteria that can be used to inform tool selection. (3)	Texuna combines OSS, vendor proprietary tools, databases, cloud infrastructure and software services for clients including PHE, DfE, Ofsted, STA, OfS, and universities including LMU, OBU and UCC. We partner with client Architecture Owner to optimise solutions. We use an evaluation framework to consider aspects of alternative solutions complexity as a matrix against confidence level of effort involved in delivering any solution. We consider data quality and integration, system standardisation and available knowhow, creating and securing interfaces between microservices and tools, against the costs, effort and skills needed to deploy. We code architecture Spikes to confirm feasibility before making recommendations.	99	Not shortlisted	1 point (3 max)	Your response did not answer the requirement in its entirety, with part of the criteria not covered in adequate detail. Whilst the response addressed most of the requirement to a satisfactory standard, the evaluation panel identified some omissions that led them to agree that overall the response did not meet the requirement in full. The example lacked evidence of how your organisation defined requirements and how this then informed tool selection.
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Proven experience of defining data transformation and migration strategies and architecture for data collection and manipulation solutions. (2)	Texuna has 18+ years collection and management experience across education and financial services. We have focused on open source options for ETL (Talend, Pentaho) and big data (Hadoop, Impala, Spark). We work with customers existing tools e.g. Alteryx for data transformation, integration and report generation for DellEMC product genetic fingerprinting) and SSIS (NCTL ITTDMS). We have built highly automated and implemented realtime collection and reporting solutions from open source libraries for NCTL ITTDMS and historically for Lifelong Learning UK. More recently we delivered Ofsted Fostering Collection using GDS frontend toolkit, Pentaho ETL validations and scalable message queues.	97	Not shortlisted	2 points (3 max)	The response answered the requirement in full, addressing the criteria to a satisfactory standard. Appropriate evidence was provided to support the response and the evaluation panel felt the level of detail demonstrated that the response covered all key elements of the criteria. The evaluation panel did not identify any concerns or shortcomings with the response and agreed that it met the requirement in full.
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Be agnostic of any particular digital ways and software, enabling us to consider a range of options to meet user needs. (1)	Our Technical Architects work with client Architecture Owners to ensure solutions are robust, future-proof, secure and vendor agnostic. We specialise on the integration of open source libraries, open standards and industry standard proprietary tools to find the fastest, most cost-efficient and user-centred solutions. We reuse existing investments in licensed products, only finding replacements if business benefits justify. We implement architecture across heterogeneous inhouse/cloud environments, mixing proprietary SaaS and traditional RDBMS vendors through our various data warehouse projects with Jisc, OBU and LMU. Our metadata driven approach includes delivering open source data governance wiki tools that integrate and share data lineage.	100	Not shortlisted	2 points (3 max)	The response answered the requirement in full, addressing the criteria to a satisfactory standard. Appropriate evidence was provided to support the response and the evaluation panel felt the level of detail demonstrated that the response covered all key elements of the criteria. The evaluation panel did not identify any concerns or shortcomings with the response and agreed that it met the requirement in full.
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Recent and demonstrable experience of working with in-house teams with limited agile experience and sharing knowledge, coaching, mentoring and upskilling to develop in-house team capability (4)	Texuna worked onsite with Jisc in Bristol in 2016-17, helping establish a data warehouse team, a governance process and an agile methodology. Implementation included Jisc staff from kickoff ensuring self-sufficiency after handover. All levels and roles were engaged to build awareness and understanding of user-led projects in an agile way. Texuna acted as an extension of the in-house client team helping to build internal competence and capability. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronise everyone in daily standups, regular sprints, reviews and retrospectives.	99	Not shortlisted	Nice-to-have skills or experience	
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Recent and demonstrable experience of evolving the most appropriate solution/data/technical architecture to meet user's requirements, fully integrating across different environments and technologies (3)	Texuna created an Enterprise Data Warehouse (EDW) with 140+ heterogeneous feeds from proprietary cloud SaaS and inhouse systems for Jisc. We combined structured and unstructured data into a coherent picture for BI insights and service usage (parsing log data and Google Analytics). We use Kimball enterprise business matrix to flexibly deliver a coherent story to users with conformed dimensions. Similarly we work with several Universities delivering EDW within agile rolling waves. We collaborate with architecture owners through Spikes, using infrastructure as code to demo feasibility of hybrid, portable solutions that combine existing software licences and tools with multi-cloud SaaS.	99	Not shortlisted	Nice-to-have skills or experience	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Knowledge of the UK education system, including accountability of MATs. (2)	Texuna work with data in the schools and statutory educational sector for clients including: *Edukit - a SIMS data collection and a wellbeing survey cloud infrastructure for UK school pupils. *DfE - GIAS with OliveJar and Fluent to integrate the legacy schools database to a GDS compliant Single Page App. *STA Itembank to manage SATS exam papers HE sector *Performance Profiles and NQT survey (ITTDMS). *HESA returns and DLHE data. *National Students Survey dissemination for the OfS. *DfE - SecureAccess (Single Sign-On for all school headteachers and delegates). *Oxford Brookes and London Metropolitan University Data Warehouse services.	89	Not shortlisted	Nice-to-have skills or experience	
DfE	Digital Solution for Integrated Multi-Academy Trust (MAT) Information - Discovery	Demonstrable evidence of working successfully with users in the school/education system (3)	Texuna has carried out extensive user research with school leavers, mature students and teachers. We working with: *OfS and NUS engaging with students at HE level including mature students; *NCTL engaging with teachers at schools in data returns and to deliver GTP applications for PGCEs before it migrated to UCAS; *UCC engaging with students to design a University work placement system; *Indeemo reaching thousands of user segments via mobile qualitative research, longitudinal diary study and mobile ethnography - including school leavers and mature students research with University of East London, University of Southern California, University of Tampere and Cengage Learning.a	96	Not shortlisted	Nice-to-have skills or experience	
BEIS	Energy Statistics Data Management Solutions	Previous experience of designing databases and new data and technical architecture solutions that meet user / business needs	Texuna has 18-years experience deploying innovative database management and large scale automated data collection solutions. Database management has been at the core of a range of our DfE projects (e.g. Initial Teacher Training and Performance Profiles). We migrated DfE Edubase2 to GIAS through a microservices style architecture on Azure SQL PaaS over last 2 years, now at GDS go-live assessment stage. Texuna have architected and engineered full-stack enterprise solutions and operate substantial cloud-based DevOps infrastructure with Enterprise data warehouse and reproducible analytical pipelines (e.g. Jisc, OBU, LMU, OfS) and hadoop-based big data for financial services.	93	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Strong knowledge and understanding, and a track record of delivering automated data pipelines and producing robust and reproducible analysis	For 15+ years with Dfe/NCTL ITTDMS, Texuna designed and operated a repeatable, quality assured automated analytical pipeline to reproduce annual Performance Profiles, with dozens of other analysis datasets for different personas. We deliver a Reproducible Analytical Pipeline with PDF markdown for each University's annual OfS National Student Survey, automating sophisticated publications. Texuna specialises in cross-infrastructure data delivery pipelines that enforce data quality and integrity across multiple validation levels. Our multiple EDW projects use metadata-driven ETL processes to verify data against governance standards, automatically generating master data records based on a prioritised hierarchy ensuring trusted sources take precedence.	97	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Experience in working with complex, messy & interlinked datasets	Texuna are Ghostbusters for integrating legacy sources and often reverse engineer historic logic. At PHE we deliver longitudinal epidemiology patient record database containing 50+-year-old radiology datasets. Complex data feed manipulation via reprogrammable javascript functions provides flexibility to independently load, match and reload datafeeds. Our Jisc EDW takes data from over 100 datasources with real-time matching and merging into a cloud warehouse. Several million records are automatically processed each day. We implement controls over informal reference and master data files. Texuna uses metadata-driven opensource ETL tools and bespoke Java/Javascript for matching and transformation capabilities based on customer needs.	99	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Previous experience of using MS SQL 2012 and above	Currently at DellEMC we import Salesforce data and optimise it via Alteryx and MsSQLServer to create a genetic fingerprint of delivered products and services. A star-schema simplified strategic reporting and analysis. ETL cleansing and transformation facilitated quality improvements, auditing and versioning. Our DfE Teacher Training data collection service grew from a single data collection to support multiple collections and datasets on SQLServer/APS over 15 years. Texuna migrated multiple inhouse legacy solutions to MsSQL2012 and later leveraged AWS and Azure MsSQL cloud services. E.g the DfE GIAS inhouse solution initially on SQLServer is now Cloud hosted.	94	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Previous experience of using SQL Server Integration Services	Texuna has many years collection and management experience across education and financial services. We have heavily used SSIS on Department of Education projects notably NCTL ITTDMS for 15+ years. SSIS makes it difficult to create metadata-driven ETL and automated data pipelines, and limit work to deployment of SQL jobs to source or target systems. Our new projects focus more on open source options for ETL (Talend, Pentaho) and big data (Hadoop, Impala, Spark). We work with customers existing tools when available and suitable e.g. Alteryx to take data from DellEMC data lake.	92	Not shortlisted	Not mentioned	poor response
BEIS	Energy Statistics Data Management Solutions	Previous experience of using version control software and knowledge management solutions such as gitlab	We use GITlab extensively for source control and configuration management. As we share source with clients we may use either Gitlab or GitHub. GitHub is in use at major clients such as Jisc, to deliver an Enterprise DataWarehouse that Jisc staff now maintain, at Dell for our project with customer experience engineering and at London Metropolitan University where we are developing an Enterprise Data Warehouse. Our engineers are proficient in the use of both Git and Github, we will work with our clients' tools of choice. Our focus is to deliver value for money, platform independence and development execution.	99	Not shortlisted	Not mentioned	strong response

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
BEIS	Energy Statistics Data Management Solutions	Ability to work closely and collaboratively with internal data and technical experts	Texuna engage and communicate effectively with stakeholders, business, public users across divisions. We worked onsite with Jisc in 2016-17 to establish a new warehouse team, governance process and install an agile methodology. We worked with experts and stakeholders at all levels and roles across business units to create a common business language and ontology for data. Texuna extended the in-house team to help develop internal competence and capability. We are always mindful of people's contribution and deference to expertise, using visual problem-solving tools to arrive at a shared understanding of problems and solutions to reach desired outcomes.	97	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Ability to clearly communicate key criteria, trade-offs and risks to underpin business and development decisions	Texuna drive pragmatic decision-making by presenting visualised evidence of priorities, complexities and tradeoffs. At Jisc we reviewed and delivered on business case for a £2-million budget Enterprise Data Warehouse, interacting with senior leaders for each Jisc business unit to ensure their opportunities were understood and needs delivered. We delivered architecture spikes that respect and leverage what is already available, while introducing step-change improvements and cloud capabilities to deliver new digital insights. We combined COTS, cloud SaaS and open source libraries, building, borrowing and integrating software and microservices to deliver a high performance, scalable and functional service in agile rolling waves.	100	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Transfer skills and documentation for business as usual operations and future development	Our transparent partnership goes beyond openly sharing quality technical documentation. We maximise staff engagement during design and implementation. Handover friction is minimised by using client project and collaboration tools to capture project artifacts and progression.

We trained Jisc staff to work with new, agile data pipeline methodologies. We worked onsite at Jisc on daily basis with combined team responsibility for several major releases. We coached and mentored existing and new Jisc staff throughout the development cycle from requirements to testing. Regular rigorous code reviews, sprint retrospectives and automated regression testing of ETL jobs embedded knowledge sharing over time. | 97 | Not shortlisted | Not mentioned | strong response |
| BEIS | Energy Statistics Data Management Solutions | Previous experience of using scripting languages such as Python, R. | Texuna delivers in a number of languages, predominantly java, and Typescript or Javascript. We combine scripting languages like Latex and markdown to deliver reproducible analytical pipelines. For example at OfS National Student Survey, we pre-pack a range of complex analyses for high-speed delivery on annual release date. We use a combination of scripting to automatically generate multipass SQL, Latex and PDF markdown to package pretty reports for printing. However, we also make the results available in analytical spreadsheet format.

For university learner analytics we are using Python and Jupyter Notebook to deliver ongoing work-in-progress and exploratory insights. | 97 | Not shortlisted | Not mentioned | poor response |
| BEIS | Energy Statistics Data Management Solutions | Previous experience of MS Excel and MS Access 2010 or later | Texuna have deep expertise with collection and publication projects that leverage Excel formats for data input and for data delivery. Our open approach means we allow all data (subject to expected permissioning) to be exported in multiple formats (Excel, PDF), using markdown to automatically generate sophisticated reports with pretty presentation (OfS National Student Survey, NCTL Performance Profiles) and for collecting wide-ranging data (Ofsted Fostering Data Collection, various Data Warehouse ETL jobs etc). Our warehouse projects regularly connect to MsAccess as a regular RDBMS source with ETL connectors, and we can provide Microsoft Access skills if required. | 96 | Not shortlisted | Not mentioned | strong response |
| BEIS | Energy Statistics Data Management Solutions | A track record of delivering data management systems for government | Texuna, established in 2000, are a company who specialise in data management solutions. We have a strong track record of successful project delivery to the Education sector and particularly to the DfE (since 2008) and government agencies.

The ITTDMS (DfE) began in 2003 as a single data collection and grew to 10 annual collections seamlessly, where Texuna designed and ran the operational service.

For Jisc data warehouse we designed a data classification and obfuscation scheme to manage data movement between environments.

Our public sector implementations have passed gateway standards reviews and deemed fit-for-purpose (e.g. Ofsted, STA, DfE). | 98 | Not shortlisted | Not mentioned | strong response |
| BEIS | Energy Statistics Data Management Solutions | Knowledge of energy data | Texuna has worked with clients in metals & mining as well as oil & gas including Gerald Metals, Zamin Resources, and Reata Shale. Some of our staff and freelance consultants have also worked with oil trading clients (Met Group) and on projects with companies linked to the nuclear industry as well as working with financial services and market data. | 59 | Not shortlisted | Not mentioned | strong response |
| BEIS | Energy Statistics Data Management Solutions | Broader technical skills around javascript, PHP | Texuna delivers predominantly Java and Javascript. Our front-end team produce GDS compliant solutions using AngularJS, JQuery, SASS mixins and other javascript libraries. We use the GDS libraries and APIs for Ofsted to meet GOV.UK standards. Our teams gained deep knowledge of JavaScript and Typescript through Ofsted and CheckMate projects using Angular and NodeJS. We have combined these approaches with ETL packages with message queues and AWS Lambdas for a schools data collection service for Edukit.

We have also worked with both Indeemo (mobile ethnographic qualitative research) and Alison.com (MooC) on infrastructure projects which heavily rely on PHP. | 96 | Not shortlisted | Not mentioned | strong response |
| BEIS | Energy Statistics Data Management Solutions | Ability to train and embed knowledge and skills into internal teams | Texuna have helped upskill client staff working collaboratively in projects like Jisc, Ofsted, and University clients. Texuna mixed lean, agile and kanban techniques with the collaboration tools already in use to improve transparency and speed. We introduce terms, methods and formal roles in Agile Scrum to the in-house team, and deliver upskilling sessions based on the architecture and technologies used and implemented.

Texuna scaled a team at Jisc from discovery to delivery and handover. The team grew from 5 analysts to 20 multi-disciplinary roles. Texuna has a mature track record with multiple offices and almost 40 employees. | 97 | Not shortlisted | Not mentioned | strong response |
| BEIS | Energy Statistics Data Management Solutions | Knowledge of using geographic or spatial data with databases | We have experience with mining applications for geological drilling and sample tracking services used to determine geological models of resources and reserves on topographical maps.

 Texuna has also has presented geospatial data on interactive maps for a number of our projects:

* Jisc reports defined in Tableau to look at regional and local maps and presentations.
* TravelGuide is a smart location-aware mobile app that makes exploring travel, history and sights data from multiple sources including Wikipedia available easily.
* location data to search for educational establishments for Edubase2 (Google Maps) and LLUK (Mapbase). | 93 | Not shortlisted | Not mentioned | strong response |

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BEIS	Energy Statistics Data Management Solutions	Previous experience of Linux OS, such as Ubuntu 16 (or later) or similar	Texuna staff and solutions work with a range of Linux OS depending on the task and stack in use, as well as customer needs. We use Ubuntu 16.04 LTS for almost all CI/CD and internal workloads like Jenkins, Gitlab, Ldap etc. We use Debian and Ubuntu servers without problems including major version upgrades. Client projects tend to use CentOS 7 given its similarity to RHEL 7. For AWS High Performance workloads we use optimised Amazon Linux 2 images (a clone of CentOS, rpm-based distro). Client Enterprise Data Warehouse Projects use AWS Linux or RHEL 7.	95	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Previous experience of using R	Several Texuna staff have undergraduate degrees with majors in economics or statistics and have also used a range of statistical packages including R, Python, Matlab and GNU Octave.	28	Not shortlisted	Not mentioned	strong response
BEIS	Energy Statistics Data Management Solutions	Previous experience of working with PostgresSQL or another open source SQL database	Our teams deliver in a number of open source databases including MySql, PostgreSQL and MongoDB. Our default RDBMS is Postgres, and we use it extensively for our data pipeline projects and metadata-driven ETL approach at Jisc, Oxford Brookes University and London Metropolitan University (all data warehouse projects). We use Postgres for mirror, staging, master data and operational data stores within our automated infrastructure as code. We also use Postgres as an alternative to columnar databases (e.g. Redshift) when we need warehouse portability, and have optimised Postgres to serve OfS National Student Survey real-time interactive analytics (10's of millions of records).	100	Not shortlisted	Not mentioned	strong response
DfE	Teachers' Payment Service - Beta	Proven experience of designing and developing transactional digital services using an agile approach and successfully meeting the Digital Service Standard.	EduBase transaction system was re-engineered and relaunched in September 2017 for GIAS. We designed and developed an updated api-driven database of educational establishment records as a central register of 'truth'. Texuna delivered the solution following Digital Service Standards using user-centered agile sprints and iterative delivery reviews with internal stakeholders and external endusers. Texuna provide the database, validations, capabilities, sophisticated access control and performance for this transactional digital service, assuring over 1,000 concurrent sessions at peak. GIAS has been well received and our team is continuing with a new scope of work in 2019 as GIAS moves from Beta to Live.	100	Not shortlisted	1 point (3 max)	
DfE	Teachers' Payment Service - Beta	Ability to take alpha outputs and build on these to deliver a public beta service that meets user needs and strategic objectives and GOV.UK design patterns and standards.	Ofsted contracted Texuna to pickup alpha prototypes and deliver a working fostering portal to automate the data collection process and eliminate significant manual effort of users and staff. The Fostering Data Collection App passed into a public beta launch in May 2018. Texuna delivered solution that focused on user needs and outcomes. We reused available GDS Single Page App design patterns and followed standards throughout user-centered agile sprints and iterative delivery reviews with internal stakeholders and external endusers. We introduced communication channel automation between Ofsted and Fostering agencies, helping Ofsted meet strategic objectives as confirmed by written feedback.	98	Not shortlisted	2 points (3 max)	
DfE	Teachers' Payment Service - Beta	Proven experience of designing and building cloud based web solutions.	Ofsted Fostering Data Collection went into country-wide public beta in May2018 on AWS. Texuna delivered a cloud-native solution using Ansible, Teraform and Docker containers to simplify infrastructure portability and follow best practice for GDS infrasture-as-a-code. We leverage some AWS cloud capabilities through SAAS/PAAS components like RDS, Gateway, and serverless Lambdas. Similarly GIAS morphed from a dedicated in-house java application on SQLServer (Edubase2), moving to AWS in 2015, before being re-engineered as a cloud API service supporting the GIAS Single Page App from 2017. In 2018 it was migrated to the DfE Azure environment through infrastructure-as-a-code best practices and portable, cloud-agnostic technologies.	100	Not shortlisted	2 points (3 max)	
DfE	Teachers' Payment Service - Beta	Demonstrable experience of recruiting user research participants including users with accessibility and assisted digital needs.	For Ofsted in 2018 we worked with internal staff to identify and recruit users to participate in ongoing research and feedback to inform service design and development. Similarly at OfS we work with Ipsos Mori, the H.E. sector and N.U.S. to identify and recruit student and staff research participants on an annual basis to participate in workshops and guide future service direction for National Student Survey dissemination. We can negotiate access to the Jisc Research Panel service to expand recruitment, and contract with People for Research who specialise in difficult-to-reach users for assisted digital needs and accessibility requirements.	98	Not shortlisted	2 points (3 max)	
DfE	Teachers' Payment Service - Beta	Significant experience of conducting user research and usability testing sessions (on a range of devices, face to face and remote) based on a robust methodology.	Texuna delivered the Ofsted Webapp in 2018. User research was done to test hypotheses and design iterations through a combination of workshops and sprint reviews with internal stakeholders and representative external end users. User researchers conducted interviews (face-to-face and remotely) to review refined journeys on and distributed video composites of visual mockups, Balsamiq wireframe prototypes and iterated prototype designs based on GDS frontend toolkit and design patterns. Usability feedback was collected through observation, audio and video capture. We used Indeemo and Axure tools to coordinate workshops and remote sessions and capture user behaviour and record feedback.	96	Not shortlisted	2 points (3 max)	
DfE	Teachers' Payment Service - Beta	Ability to design services to 'AA' of the W3C WCAG2.0 accessibility standards (including compatible with the latest Assistive Technologies: JAWS, Zoomtext, Dragon NaturallySpeaking, and Dolphin Supernova).	The Ofsted Fostering Data Collection is a responsive web-based application that went into public beta in May 2018. It was designed and tested to 'AA' level (W3C WCAG2.0). Texuna used WAI ARIA features to improve accessibility for digital inclusiveness as per GDS guidelines. Test scenarios included: - CSS is turned off; - functionality via keyboard shortcuts; - non-text content has text alternatives; - functionality remains usable without JavaScript. Our standard testing included auditing tools (screen readers and magnifiers like VoiceOver, JAWS and Zoomtext) and checks across multiple devices and screen sizes to ensure responsiveness features worked appropriately on different platforms.	100	Not shortlisted	2 points (3 max)	
DfE	Teachers' Payment Service - Beta	Proven experience of assessing and mitigating security and privacy issues and ensuring GDPR compliance.	Texuna worked with DfE Secure Access to assess and mitigate security and identity attribute privacy issues during 2017/2018. The identity and access management service facilitates the secure creation and management of credentials, provisioning users and attributes to a number of existing legacy systems. It provides a Single Sign-On public gateway to 11 core systems, including the National Pupil Database. The service passed all audits and RMADs assessments including 3rd party penetration tests. SImilarly Texuna's STA ItemBank for creating SATs exams was independently evaluated for security and penetration tested by Capita in 2018 which highlighted our excellent web portal security.	98	Not shortlisted	2 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Teachers' Payment Service - Beta	Recent experience of successfully meeting the Digital Service Standard for a public beta government service.	Texuna have successfully delivered public beta services in the public sector that meet the Digital Service Standard, and contine to work on these projects as they develop further and push into official Live phase. The Ofsted Fostering Data Collection rolled out sector wide in a public beta in May2018. The web-based solution is outcome-oriented, meets user needs and followed GDS guidelines. Texuna helped Ofsted meet strategic objectives as confirmed in written feedback. We collaborate with GDS and DfE to deliver GIAS and progress through GDS gateway reviews successfully in last 2 years. This includes external penetration testing, risk and security assessments.	99	Not shortlisted	Nice-to-have skills or experience	
DfE	Teachers' Payment Service - Beta	Recent examples of using the styles, components and patterns in the GOV.UK design system.	Texuna has extensively leveraged GDS Styles and Frontend toolkit libraries (Angular components). This gives high assurance on usability and accessiblity and confidence on digital inclusiveness. The 2018 Ofsted Fostering Data Collection is a responsive web application is designed and implemented using the styles, patterns and components from the GOV.UK design system. The service is W3C WCAG2.0 'AA' compliant and all technical documention was created using the GDS documentaion-as-a-code best practices. We designed and deployed a cloud-based eDiscovery/eDisclosure solution for the Department of Finance (Ireland, 2018) with API-driven microservices accessed via SIngle PageApp created mostly from GDS toolkit, components and patterns.	99	Not shortlisted	Nice-to-have skills or experience	
DfE	Teachers' Payment Service - Beta	Experience of using common platforms, specifically GOV.UK Notify, Verify, Get Information About Schools and DfE Sign In.	We follow GDS progress and regularly review available digital tools, framework libraries and guidance. We have already evaluated available services such as Notify and Verify for DfE in 2018. We have a deep understanding of the GDS API architecture having designed and implemented several widely used API interfaces through Swagger and YAML for DfE (GIAS and Secure Access solutions 2017/2018) and fed the GDS Schools Register in 2017. We integrated Secure Access with GIAS and 7 other central DfE services to enable SSO through SAML and bespoke web services. We also helped migrate Secure Access to DfE Sign-in.	98	Not shortlisted	Nice-to-have skills or experience	
DfE	Teachers' Payment Service - Beta	Experience of building using Microsoft Azure cloud.	Our solutions are based on infrastructure-as-a-code to ensure cloud-agnostic, portable solutions. We migrated the GIAS backend from AWS to DfE Azure environment (2017) and continue to maintain it on Azure. We use Azure tools to ensure continuous integration and continuous deployment to automatically manage operations alongside DfE partners OliveJar. We provide robust automation to minimise maintenance and harden live services against unplanned Microsoft patching activities and unexpected Redis cache disconnections. We ensure Azure security and integrity through virtual private cloud configuration, using sophisticated encryption to protect data at-rest and in-transit and configuring robust backup and Disaster Recovery processes.	98	Not shortlisted	Nice-to-have skills or experience	
DfE	Teachers' Payment Service - Beta	Experience of delivering a service integrating with a payment out solution and mitigation of fraud risks.	In a joint project with Hitachi, Texuna worked with a European bank to pilot self-service analytics. The project delivered a BI platform that streamlines risks analysis and mitigates fraud. Written feedback was highly commendable. Texuna also worked on a collaborative project between Gerald Metals, the Royal Mint and Zodiax crypto wallet to investigate the feasibility of gold crypto token trade as a stable coin for use to enable small cash payments via debit cards. We also completed PCI DSS audit for startup ExecRuns. Texuna is certified to Cyber Essentials and ISO27000 demonstrating our commitment to risk assessment and mitigation.	99	Not shortlisted	Nice-to-have skills or experience	
DfE	Teachers' Payment Service - Beta	Experience of leading, coaching and upskilling people in agile methods and techniques in order to build internal capability.	Texuna worked onsite with Jisc over the last 3 years to establish an inhouse EDW team, a governance process and introduce an agile methodology. Regular gateway signoffs ensured staff regularly engaged in design and implementation activities. We introduced terms, methods and formal roles for Agile Scrum to the in-house team, and delivered upskilling sessions based on the methodology, architecture and technologies implemented. This included agreement on collaborative coding, the definition of done, and source-code / cloud DevOps commits to a shared Github repository. Texuna acted as an extension of the in-house client team helping to build internal competence and capability.	99	Not shortlisted	Nice-to-have skills or experience	
DfE	Teachers' Payment Service - Beta	Experience of analysis of existing research, analytics and insight to ensure good understanding of users and their needs.	Texuna's Business Analysts and User Researchers focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. We also investigate historic audit trails (e.g. weblogs) for past usage behaviours to establish new hypothesis for testing. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements e.g. Jisc and University data warehouses. We also leverage retrospectives on projects like Ofsted and DfE GIAS to generalise lessons learned about what user experience, design and content really helps users to achieve their desired outcomes.	96	Not shortlisted	Nice-to-have skills or experience	
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience in delivering Data Science products/services within Public Sector	In2015 Jisc contracted Texuna to better integrate the business units and give single view of services to its members. Jisc decided to implement EDW with an Extract, Transform and Load (ETL) solution. Texuna created EDW with 140+heterogeneous feeds from proprietary cloud SaaS and in-house systems. We combined structured and unstructured data into coherent picture for BI insights and service usage (parsing log data and GoogleAnalytics). We use Kimball enterprise business matrix to flexibly deliver coherent story to users with conformed dimensions. Now Jisc processes billions of data points to produce 250GB EDW of pre-processed historic data in columnar store.	100	Not shortlisted	1 point (3 max)	unsure that this is an example of working in the Public Sector
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience in architecture servcies and ensuring new and updated platforms, products, transactions and system architectures are robust, scalable, open and secure	Our Technical Architects work with client Architecture Owners to ensure solutions are robust, scalable, easy-to-maintain and offer value-for-money. We are vendor agnostic so that our solutions are easily migrated. EduBase/GIAS was ported from local hardware to AWS to Azure hosting without issue (2017). We focus effort so that our products are easy-to-use and accessible by adopting GDS styles and user engagement methods. Quality assurance and security are fundamental to our processes. We code to secure development standards and test delivered code at all levels: regression scripts ensure agile sprint releases are validated, penetration and performance testing performed prior to public beta.	100	Not shortlisted	2 points (3 max)	Good experience evidenced

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience in DevOps services including running production applications, optimising existing applications and design new ones	Texuna specialise in DevOps and pipelines. Texuna have architected and engineered full-stack enterprise solutions and operate substantial cloud-based DevOps infrastructure with Enterprise data warehouse and reproducible analytical pipelines (Jisc, OBU, LMU, OfS) and Hadoop-based big data for financial services. We deliver a Reproducible Analytical Pipeline with PDF markdown for each University's annual OfS National Student Survey (since 2014), automating sophisticated publications. For 15+ years with Dfe/NCTL ITTDMS, Texuna designed and operated a repeatable, quality assured automated analytical pipeline to reproduce annual Performance Profiles, with dozens of other analysis datasets for different personas. Texuna experienced Dev/Ops staff (5years experience) are immediately available.	98	Not shortlisted	2 points (3 max)	Good experience evidenced
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience in building scalable server-side cloud-based web applications (preferably Microsoft Azure) detailed knowledge of the C#, .NET, ASP.NET MVC programming languages	Our team includes many full-stack devs with skills in all cited technologies, each with 10+ years experience in Texuna. Our web applications are hosted both on AWS and Azure. For example, we work with the DfE to host GIAS on Microsoft Azure, using continuous integration and continuous deployment to cloud to automatically manage operations with other suppliers. We use cloud tools to implementation robust engineering designs for enterprise-level solutions, giving growth flexibility and scale. Texuna has established expertise in .Net Framework including experienced C# developers that work across multiple technology stacks, including relational and NoSQL databases, as well as Redis caching technology on Azure.	104	Not shortlisted	2 points (3 max)	Good experience evidenced
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience in building front-end web applications (HTML/CSS/JS)	Texuna drives open-source and open-standards, and have adopted the GDS front-end toolkit libraries to build prototypes and deliver working SPAs based on JavaScript/HTML5/CSS3 and RestAPIs. Our Tweakaboo, Indeemo, EduKit projects are all mobile ready responsive applications that work on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Our work with startups keep us up-to-date with the latest technologies and help us migrate best practices to government projects. Server-side rendering all work with CSS so that we can easily update and reflect branding changes when needed, and all our public sector projects meet GDS standards.	102	Not shortlisted	2 points (3 max)	Good experience evidenced
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Demonstrable experience of working in multi-team agile delivery programmes	Texuna deploys multi-disciplined teams and comfortably works with mixed client teams. Within PHE we work with ICT, data experts and statisticians. We work with faculty, librarians, ICT and non-academic staff with several Universities. For Jisc we established a data warehouse team, a governance process and an agile methodology which focused our attention on the whole range of projects, teams and services within Jisc as an organisation with hundreds of employees. We collaborate with client teams from the start to ensuring self-sufficiency after handover. All levels and functions were engaged to build awareness and understanding of the project and expected outcomes.	100	Not shortlisted	0 points (3 max)	no mention of Agile usage, would like to have seen reference to use of Agile ceremonies etc.
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience of passing GDS service assessments	Texuna have integrated services and built solutions following GDS standards and guidelines to the required level of usability and accessibility for many DfE projects in recent years. We delivered Ofsted Fostering Data Collection in 2017-2018 using the agile methodology subject to the GDS Alpha Service Standard. Our DfE GIAS work successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. EduBase2 is now re-engineered with RestAPIs for GIAS and waiting GDS Live assessment. Similarly we had successful approval to operate cloud portable Secure Access for many years on Eduserv and subsequently on AWS.	97	Not shortlisted	2 points (3 max)	Good experience evidenced
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience of Microsoft product suite in the education sector	Texuna work with proprietary software stacks, cloud services and open source software, creating integration connectors between different sources and targets. Texuna has migrated legacy solutions from hosted environments to cloud and leveraged cloud services provided by AWS and Azure clouds. E.g the DfE GIAS in-house solution initially on SQLServer is now Cloud hosted. We work with proprietary SaaS data feeds such as Dynamics 365 and Salesforce, as well as bespoke integration. We achieve this using open source tools (ETL and ESB). Our warehouse projects regularly connect to MsAccess as a regular RDBMS source with ETL connectors.	95	Not shortlisted	2 points (3 max)	Good experience evidenced
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience of Cyber Security in the education sector	Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009) and Cyber Essentials through IASME. Our developers follow OWASP best practices and we internally penetration test all our solutions. We manage security risks at both project and organisation level and record security incidents with root-cause analysis so we resolve and minimise re-occurrence. Urgent issues impacting Production are immediately addressed to minimise downtime. All Texuna Government projects are at OFFICIAL level. These include Secure Access (Single Sign-On beyond the firewall to all schools), Getting Information About Schools, Teacher Training ITTDMS, STA Itembank and Ofsted's Fostering Data Collection.	98	Not shortlisted	2 points (3 max)	Good experience evidenced
ESFA (DfE)	Data Science agile development - Development, Architecture and DevOps Services	Experience in delivering ESFA's Data Science products/services	In2015 Jisc contracted Texuna to better integrate the business units and give single view of services to its members. Jisc decided to implement EDW with an Extract, Transform and Load (ETL) solution. Texuna created EDW with 140+heterogeneous feeds from proprietary cloud SaaS and in-house systems. We combined structured and unstructured data into coherent picture for BI insights and service usage (parsing log data and GoogleAnalytics). We use Kimball enterprise business matrix to flexibly deliver coherent story to users with conformed dimensions. Now Jisc processes billions of data points to produce 250GB EDW of pre-processed historic data in columnar store.	100	Not shortlisted	0 points (3 max)	No mention of working in the Education Sector

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ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	At least 5 years demonstrable experience in Agile (preferably Scrum and/or Kanban) methodology to projects, to be applied in line with the Data Science Test Strategy	Texuna actively deliver on GIAS (since 2008) using Scrum agile methodology. We develop and test the back-end services for GIAS and expose an API to a Single Page App frontend according to GDS standards and Service Manual. We participate fully via tools like Redmine, Zoom, Slack and Azure DevOps to manage Sprint planning, prioritisation, backlog grooming and team communications. We use daily standups with sprint reviews and lessons-learned retrospectives to ensure scope is managed, users are continually appraised and can provide feedback. Texuna has delivered over 15 GIAS sprints from start to finish with DfE using Agile Scrum/Kanban DevOps methodologies.	99	Not shortlisted	2 points (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Be able to confidently talk about agile processes	Texuna mixed lean, agile and kanban techniques with the collaboration tools already in use to improve transparency and speed. We introduce terms, methods and formal roles in Agile Scrum to in-house team, and deliver upskilling sessions. We help clients unfamiliar with Agile by engaging and leading them. We have embedded agile collaboration with client staff in Jisc and scaled a team from discovery to delivery and handover. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronise everyone in daily standups, regular sprints, reviews and retrospectives.	99	Not shortlisted	2 points (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Demonstrable experience of defining or breaking down user stories and acceptance criteria using test design techniques, thereby statically testing the solution at the time.	At PHE we deliver longitudinal epidemiology patient record database containing 50+-year-old radiology datasets. Complex data feed manipulation via reprogrammable javascript functions provides flexibility to independently load, match and reload datafeeds. To test this complex import procedure based on many rules written in user stories for each import Texuna created test framework which allowed to store all test cases provided full test coverage in one place, generated feed for all imports automatically and analysed fail/pass. All acceptance criteria were taken from user stories and meetings with customer. None bugs relating to user stories of import rules were found by customer.	99	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Contribute to defining and measuring 'Done', in order to actually determinewhat the definition of 'Done' actually means in terms of quality.	Texuna define the software product as "done" if it is Verified: reviewed and tested to ensure that requirements, design and implementation lineup. Our design-thinking targets multiple stakeholder types, each with different but equally important objectives and measurements of success that span across business starting from strategic and through all operational-levels. We create hypotheses that check our assumptions and iterate based on user research and feedback. Texuna received excellent feedback from Jisc when designing their EDW. Texuna conducted100+ user interviews and workshops using visual,interactive design-thinking techniques to share ideas and ultimately solicit and verify the needs and strategic objectives of all stakeholders.	100	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Demonstrable experience of helping developers in generating comprehensive unit tests and pair with them as appropriate.	In November 2015 Texuna has developed a system for continuous automatic testing of ETL transformations for JISC EDW project. The framework simplifies test development, testing each data stream separately and cuts testing time. The framework is based on two separate tabs in Excel (Initial dataset; and Expected result). The framework delivers an automated regression report of testing results for each change in ETL code. JISC developers continue to use it for testing of ETL code at the moment.	78	Not shortlisted	0 points (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Use quality characteristics such as functionality, reliability, usability, efficiency, maintainability and portability helps define the context of value and level and type of testing required to meet definition of done.	Texuna combines evidence gathered in workshops with user survey feedback to inform desired user behaviours and outcomes. We combine GDS standards and best practices with design thinking and user journey mapping. Accessibility is tested with the GDS recommended toolsets to at least WC3 AA level and independently tested. For Ofsted we delivered the Fostering Data Collection in 2018 after conducting user research against multiple prototypes and subsequent working system iterations. Usability feedback was collected through observation, audio and video capture. We make regular demonstrations of updates to real users and solicit feedback. We iterate continuously toward the final solution.	98	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Demonstrable experience of using a risk based approach to testing.	Ofsted Fostering Data Collection web-application was conceptualised and delivered in-full within 5 months ready for the 2018 collection period. Alpha delivery included monthly show-and-tells to demonstrate progress to the Project Board. Due to tight timeframes, risk-based testing was used to prioritize tests of features and functions in web-application. Firstly we concentrated on correct data imports (main portal feature) and presentation in the system via API services. Then performance and security testing were completed for API services. Finally, we fully tested front-end part of the application. Feedback from users was excellent.	90	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Demonstrable experience of Evaluating Emergent Behaviour: Using exploratory testing techniques following the customer's needs, finding defects not found in unit/integration testing but could easily cause the acceptance testing to fail.	Texuna's project life cycle is modeled around Test Driven Development and Agile methodology. This provides process of constant testing and rebuilding within iterative development sprints. This also allows the company to implement a constant quality control regime. Each iteration in the development phase stimulates the application of a series of tests to check if the objectives have been met and quality is being maintained. Automated tests for functional and regression testing are implemented for every feature, and the release is also tested manually, where applicable (this usually includes UI operability checks based on use cases and standard user behaviour scenarios)	100	Not shortlisted	0 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Demonstrable experience of Test-Driven Development (TDD), Behaviour Driven Development (BDD) and Continuous Integration (CI) and some of the tools that are used.	We are working with DfE on GIAS-project since2008. Texuna used behaviour-driven and test-driven development using artefacts from alpha-stage to set early baselines for deployable code. We automated regression testing against all commits that are integrated and pushed to release (thousands of tests/project). This happens from first commits and with test version control through GIT (unit and integration tests are included in test suites). We extended our framework using PyTest and Allure to capture and quality-check data-driven projects. We rigorously control code and data through continuous deployment/testing to find problems early via JenkinsCI. Lessons learned from bug tickets are incorporated into automated tests.	100	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	At least 3 years' experience of Test Automation in an Agile environment, including setting up and using frameworks which include Specflow / Cucumber and Selenium	Texuna's have senior testers with 10+ years of experience in manual and automated testing. We automate regression testing against all code commits. Texuna migrate continuously to improved and modern testing frameworks: *FitNesse (NCTL) *Canoo Webtest (NCTL, LSIS, EduBase, SA, GIAS) *Watir (Bosco, ItemBank, PHE) *PyTest Selenium and Allure (JISC, EduKit, Ofsted, OBU, LMU)	52	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Proven experience in API testing within Agile sprints	Texuna worked with GDS to migrate an EduBase2 legacy service to a fully functioning Rest API, allowing backend systems to be connected to a new frontend as GIAS that is aligned with GDS design patterns and standard. Texuna created microservices with REST API endpoints using YAML documentation. Created automatic tests give high-quality assurance long term over the REST API. Performance and penetration testing of REST API guarantees security and availability of live services.	72	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Proven experience of accessibility testing within Sprints and presenting finding back to the team made up of technical and non-technical members	The Ofsted Fostering Data Collection is a responsive web-based application that went into public beta in May 2018. It was designed and tested to 'AA' level (W3C WCAG2.0). Texuna used WAI-ARIA features to improve accessibility for digital inclusiveness as per GDS guidelines. Test scenarios included: - CSS is turned off; - Functionality via keyboard shortcuts; - Non-text content has text alternatives; - Functionality remains usable without JavaScript. Our standard testing included auditing tools (screen readers and magnifiers like VoiceOver, JAWS and Zoomtext) and checks across multiple devices and screen sizes to ensure responsiveness features worked appropriately on different platforms.	99	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Proven experience of Performance testing web based systems and presenting finding back to the team made up of technical and non-technical members	Regular performance testing was carried out on the DfE's Secure Access. Besides standard user login scenarios by different services, it included high load password reset scenarios, such as adding new users, approver claim, new password selection process. These processes had a total sum of ~ 2600 password operations per hour 'out of the box'. This performance exceeded requirements (up to 2000 password resets per hour). Fully reports were prepared after each performance iteration. Reports contained full performance testing process starting with requirements, architecture/environment and finishing detailed results and conclusions.	89	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Produce Test Approaches and Sprint Test Plans collaboratively with the team and suppliers, owning the documentation and managing its completion in line with the Data Science Test Strategy	Texuna delivery methods follow documented methodologies to deliver robust products effectively. We use continuous testing methodology so test plans are specified at specification stage. Test plans will specify the items that the implemented solution will be measured and tested against. The test plans will include both objective and subjective tests. The test plans will measure the system against key product quality criteria. An agreed sign-off for the test plans will be required as these will be a key measure of quality for the implemented systems. The test plans will go through the same document control process as the specification documents.	100	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Demonstrable experience of Non-Functional requirements, definition and testing.	Texuna test plans contain non-functional testing by default. Usually, it included performance and security testing which will be performed by experienced testers. For Indeemo Texuna performed deep web-application security testing. As result, the customer has signed a contract with a large client for using its application. Usability and Documentation testing are carried out during automatic test cases preparation phase. Also, our automated tests allow checking some types of user guides to ensure content is not changed or highlight changes.	78	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Demonstrable experience in exploratory testing techniques and knowing the difference between ad hoc testing and exploratory.	On summer 2018 user management functionality was changed on the National Student Survey portal. The following features were implemented: new user creation process, activation, forgotten and expiration passwords. Texuna QA performed deep exploratory testing of new user features learning them and continuously changing test cases. Few major bugs were found and fixed. The subsequent testing was completed by Capita without finding major and critical vulnerabilities. The ad-hoc testing aim is to break the system without following any process or without having any particular use case in mind. While exploratory testing should be done according to workflow and following test cases.	100	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Confident in explaining decisions to stakeholders who don't understand agile, user needs or user-centred design and delivery	Texuna work in transparent partnership with our clients. We worked with Jisc to introduce EDW and through that project we trained Jisc staff to use our methodologies and to work in agile manner. Texuna were working alongside Jisc team daily-basis with joint responsibility for delivery of some releases. This was active coaching and mentoring for the Jisc staff at each stage of the development cycle from requirements to testing. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives.	100	Not shortlisted	3 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score

ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Experience of working on UK central government services	Texuna has been a supplier to Government bodies since 2003. We have developed and currently manage the following services for Central Government:
			*DfE:
			  **GIAS - database of educational establishments
			  **Secure Access - clustered identity solution for SSO
			  **ITTDMS - annual data collection for teacher training
			*OfS - NSS Dissemination Site
			*Ofsted - Fostering Data Collection system
			*PHE - migration of the legacy EPIDOS system to REDMS
			*JISC - EDW solution
			
			Texuna have deep understanding and practical experience of government needs and evolving GDS guidelines. All Texuna pubic sector implementations have passed gateway standards reviews and deemed fit-for-purpose.
				100	Not shortlisted	2 points (3 max)	

ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Strong understanding of the Government Digital Service Standard and Service Manual.	Having worked in central government public sector for 12+years Texuna have deep understanding and practical experience of the needs of government and evolving GDS guidelines. Texuna use the Service Manual as blueprint and source of design patterns and libraries. Our extensive work with GDS on GIAS (DfE) demonstrates practical experience collaborating with GDS design patterns and accessibility standards. This work has successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 3years. GIAS has been well received and our team is continuing with a new scope of work in 2019 as GIAS moves from Beta to Live.	100	Not shortlisted	2 points (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Able to contribute to areas beyond the usual boundaries of the discipline, for example helping the team understand the service's legal and regulatory environment.	Texuna worked onsite with Jisc over the last 3 years to establish an inhouse EDW team, a governance process and introduce an agile methodology. Regular gateway signoffs ensured staff regularly engaged in design and implementation activities. We introduced terms, methods and formal roles for Agile Scrum to the in-house team, and delivered upskilling sessions based on the methodology, architecture and technologies implemented. This included agreement on collaborative coding, the definition of done, and source-code / cloud DevOps commits to a shared Github repository. Texuna acted as an extension of the in-house client team helping to build internal competence and capability.	98	Not shortlisted	1 point (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Knowledge of the Education and skills sector	Our work within Education sector gives us insight and understanding of Department's goals and objectives. Texuna work with data for many clients including: *Edukit-SIMS data collection and wellbeing survey cloud infrastructure for UK school pupils. *DfE-GIAS - the legacy schools database to GDS compliant Single Page App. *STA-Itembank to manage SATS exam papers. *Performance Profiles and NQT survey (ITTDMS). *HESA returns and DLHE data. *NSS dissemination for the OfS. *DfE-SecureAccess (SSO for all school headteachers and delegates). *OBU and LMU, JISC - EDW solutions. *UCC-Student Placement system We have an excellent reputation for successful delivery and service in government.	99	Not shortlisted	2 points (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Experience of open source and cloud technologies and their sourcing	Texuna combine OSS, vendor proprietary tools, databases, cloud infrastructure and software services for clients. For DfE-SecureAccess (since2011) Texuna combined a range of OSS libraries into IAM system with Role-Based Access Control. Budget and effort focused on integration of 11systems and services with SSO (Shibboleth). We implemented secure mail services using at least TLS2 standards. We delivered an agile Ofsted Fostering Data Collection (2017-2018) based on GDS frontend libraries and open-source ETL tools. We are equally comfortable delivering mission-critical systems on Azure, AWS or in-house on VMWare or OSS stack. DfE GIAS has been migrated from OSS stack to AWS and now to Azure.	100	Not shortlisted	2 points (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Passed certified Agile Tester course	Daria Kuznetsova achieved certificates in 2018: * software-testing.ru * Testing of web applications * Selenium WebDriver: complete guidance * Python for software testers * Security testing of web applications Roman Parkin * Mail.ru group - Website Security Analysis (25/11/15)	33	Not shortlisted	0 points (3 max)	
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	ISEB foundation and practitioner qualified.	No ISTQB certificated testers	4	Not shortlisted	0 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
ESFA (DfE)	Data Science Testing Service for Digital Service Delivery	Having worked on a Azure platform	Our solutions are based on infrastructure-as-a-code to ensure cloud-agnostic, portable solutions. We migrated the GIAS backend from AWS to DfE Azure environment (2017) and continue to maintain it on Azure. We use Azure tools to ensure continuous integration and continuous deployment to automatically manage operations alongside DfE partners OliveJar. We provide robust automation to minimise maintenance and harden live services against unplanned Microsoft patching activities and unexpected Redis cache disconnections.

We ensure Azure security and integrity through virtual private cloud configuration, using sophisticated encryption to protect data at-rest and in-transit and configuring robust backup and Disaster Recovery processes. | 98 | Not shortlisted | 2 points (3 max) | |
| ESFA (DfE) | Data Science Testing Service for Digital Service Delivery | Experienced in using the following tools, Sortsite, OWASP Zed Attack Proxy (ZAP), and visual studio. | Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed Government audits and RMADs assessments including third-party penetration tests, and we hold Cyber Essentials with IASME. We follow our Secure Development Policy developed for ISO 27001 standard and we internally penetration test all our solutions by tools:
*OWASP Application Security Verification Standard
*OWASP Zed Attack Proxy (ZAP)
*OWASP Dependency Check
*Wfuzz
*NMap
*Nikto2
*Observatory by Mozilla
*FindSecBugs | 74 | Not shortlisted | 3 points (3 max) | |
| CPRD | Development of eRAP Portal | Proven experience building easy-to-use web-based applications | The Ofsted Fostering Data Collection is a responsive web-based application that went live in May 2018. It was designed and tested to 'AA' level (W3C WCAG 2.0).

Texuna committed to deliver a GDS compliant, live, nationwide data collection portal within 4 months with regular deliveries using an Agile methodology with collaborative sprints. We partner with our clients and their users to empathise and understand needs from 'their shoes', creating a user-centred design with journey outcomes. We test paper designs, working prototypes and beta deliveries with users.

Written feedback from Ofsted and end-users was very positive. | 93 | Not shortlisted | Not provided | |
| CPRD | Development of eRAP Portal | Proven experience building cloud based services | Ofsted Fostering Data Collection went into country-wide public beta in May2018 on AWS. Texuna delivered a cloud-native solution using Ansible, Terraform and Docker containers to simplify infrastructure portability and follow best practice for GDS infrastructure-as-a-code. We leverage some AWS cloud capabilities through SAAS/PAAS components like RDS, Gateway, and serverless Lambdas.

Similarly GIAS morphed from a dedicated in-house java application on SQLServer (Edubase2), moving to AWS in 2015, before being re-engineered as a cloud API service supporting the GIAS Single Page App from 2017. In 2018 it was migrated to the DfE Azure environment through infrastructure-as-a-code best practices and portable, cloud-agnostic technologies. | 100 | Not shortlisted | Not provided | |
| CPRD | Development of eRAP Portal | Proven experience conducting and documenting user research, and iterating project work accordingly (test driven development) | Texuna's project life cycle is modeled around Test-Driven-Development and Agile methodology. This provides process of constant testing and rebuilding within iterative development sprints. This also allows the company to implement constant quality control regime. Our projects are successful because we engage end-users directly and implement changes iteratively based on their feedback and stated business needs.

For Fostering Data Collection we completed public Beta within 120 days, going from paper ideas to production-ready code through ongoing sprint "show-and-tell" with feedback between developers, users and stakeholders. We used Balsamiq and InvisionApp to transform wireframe alternatives into realistic UI designs for App development. | 100 | Not shortlisted | Not provided | |
| CPRD | Development of eRAP Portal | Proven experience delivering projects using the agile project management methodology | Texuna follow Disciplined Agile methodology to ensure user needs are met within the strategic objectives of the enterprise.

Texuna has delivered over 15 GIAS (GetInformationAboutSchools) Agile sprints with DfE using agile methodology. We participate fully via tools like Zoom, Slack and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation based on user stories and team communications. We use daily standups to manage issues. Bi-weekly sprint reviews and lessons-learned retrospectives ensure scope is managed and that users are continually appraised and can provide feedback.

We have formalised our agile processes under ISO9001, ISO20000 and ISO27001 with BSI audits. | 97 | Not shortlisted | Not provided | |
| CPRD | Development of eRAP Portal | Demonstrate understanding and ability to deliver digital services/products to the Government Digital Service standards | Texuna have successfully delivered many services that meet GDS standards and continue to work on these projects as they develop further and push into official Live phase.

Our extensive work with GDS on GIAS(DfE) demonstrates practical experience collaborating with GDS design-patterns and accessibility standards. This work has successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 3years.

GIAS has been well received and our team is continuing with a new scope of work in2019 as GIAS moves from Beta to Live.

Texuna are also certified by BSI for security, quality and service standards and hold Cyber Essentials. | 100 | Not shortlisted | Not provided | |
| CPRD | Development of eRAP Portal | Demonstrate a successful approach to completion of required GDS Service Assessment, Security Health Check, Penetration Testing, Service Readiness, and release reviews as part of quality and acceptance tests | Texuna follow the 18 GDS delivery principles, coding in the open, onsite as an extended team. Having worked in central government public sector for 12+years, Texuna have deep understanding and practical experience of the needs of government and evolving GDS guidelines.

Texuna work with the DfE and successfully passed many needed reviews, external penetration testing, risk and security assessments. These resulted in successful approval for Live running for the SA solution and GIAS launch and live running.

Texuna also worked with Ofsted on the Fostering data collection service subject to GDS approval. | 92 | Not shortlisted | Not provided | |

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
CPRD	Development of eRAP Portal	Proven ability to support and improve the solution once live	Texuna offer a fully managed solution and will provide all the necessary changes and updates as required. These will be pushed through Dev, UAT and Production environments in usual manner to assure quality. Texuna follow OWASP guidance and monitor security announcements and patch availability and apply all critical patches as soon as is practically possible to avoid unnecessary risk. Texuna are experienced service providers who have provided enterprise-level digital support for clients, audited to the ISO20000-1 standard for ITSM. We also ensuring solutions are clear, easy-to-use and understand and that documentation and additional help, e.g. videos and webinars are available.	100	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Development solely using Open Source products or products which IPR will vest with CPRD upon delivery	As open source software experts we support open standards. Being vendor agnostic we select the most appropriate tools for the task and ensure clients have future portability options to avoid lock-in. For DfE-SecureAccess (since2011) Texuna combined a range of open source libraries into IAM system with Role-Based Access Control. Budget and effort focused on integration of 11systems and services with SSO (Shibboleth). We implemented secure mail services using at least TLS2 standards. We worked with GDS for Ofsted Fostering Data Collection (2017-2018) to implement GOV.UK services and combined Angular-JS front-end SPA using PostgreSQL and Springboot/JHipster.	94	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Experience of developing web based application portal solutions	Texuna developed web-based application solutions for several of our clients. Two examples are: *Fostering Data Collection (Ofsted) - The web-based solution is outcome-oriented, meets user needs and followed GDS guidelines. Texuna helped Ofsted meet strategic objectives as confirmed in written feedback. *eDiscovery and eDisclosure platform (Department of Finance in Ireland) - The project consumes terabytes of historic file content from email servers, file servers and legacy storage. All files are converted to text, indexed and delivered through a web-based workflow. The system can also be used for GDPR and FoI requests and is based on GDS Frontend libraries for the web application.	100	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Have availability of resources to be able to start as soon as possible	Texuna has 18+ year track record flexibly resourcing projects from our multidisciplinary team, redeploying and re-assigning resources as each project needs dictate. We plan resource deployment and engage in cross-training staff to both upskill staff and provide project contingency. When the volume of work has fluctuated Texuna has increased or decreased the allocated resources to ensure targets are met without wasting resources. We have a track record of meeting deadlines and commitments while retaining long term project knowhow. We deliver to the education sector where our clients experience both busy periods and quiet times in the academic year.	97	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Previous successful experience delivering digital services within Government	Texuna has been a supplier to Government bodies since 2003. We have developed and currently manage the following services for Central Government: *Department for Education: **Getting-Information-About-Schools (GIAS) - database of national educational establishments **Secure Access - clustered identity solution for SSO **Initial Teacher Training Database Management System (ITTDMS) - annual data collection for teacher training *Office for Students - National Students Survey Dissemination Site *Ofsted - national Fostering Data Collection system *PHE - migration of the legacy EPIDOS system to REDMS *JISC - Enterprise Data Warehouse solution Texuna have deep understanding and practical experience of government needs. We have an excellent reputation for successful delivery and service in government.	100	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Proven track record of building services with robust disaster recovery plans in place	Texuna implements a detailed BCDR plan which we test regularly. Backups of all applications are taken on a frequent basis (intraday/week/month/year) and stored on-site (for quick recovery) and off-site (in case of location disaster). This means that in the event of location failure, all systems can be accessed from the backed up location. Named staff members are in place at each location to take responsibility for all business continuity operations. In the event of office disaster, web-based availability of resources allows Texuna to operate from alternative locations seamlessly. Regular automated monitoring is in place to ensure system stability and availability.	100	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Proven track record of building services with automated testing procedures	Texuna's have senior testers with 10+ years of experience in manual and automated testing. We automate regression testing against all code commits. Texuna migrate continuously to improved and modern testing frameworks: *FitNesse (NCTL) *Canoo Webtest (NCTL, LSIS, EduBase, SA, GIAS) *Watir (Bosco, ItemBank, PHE) *PyTest Selenium and Allure (JISC, EduKit, Ofsted, OBU, LMU)	49	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	A track record of successfully delivering IT projects within public sector organisations	Texuna have 15+years public sector experience managing sensitive data, with deep understanding and practical experience of government needs. Relevant projects include: *PHE/OfS/DfE/Ofsted projects (discribed above) *Edukit - SIMS data collection and wellbeing survey cloud infrastructure for UK school pupils *MoD - ETL provision *Standards and Testing Agency - Itembank to manage SATS exam papers *HESA returns and DLHE data *Jisc and several universities - EDW solutions *University College Cork - Student Placement system Texuna also ran the LLUK SIR collection for the FE / ACL sector in the past. All Texuna pubic sector implementations have passed gateway standards reviews and deemed fit-for-purpose.	100	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
CPRD	Development of eRAP Portal	Experience of Application Forms (example: https://www.cprd.com/sites/default/files/ISAC%20Protocol%20Application%20Form%202018_0.docx)	Texuna have built a number of data collection platforms that take data in a number of different formats including eForms, paper form scanning and xml for data submissions. We have also ensured that data entry forms are safe from cross site scripting and SQL injections so that the solutions are safe and fit for purpose. A recent example includes a radiology epidemiology system for PHE which allows complex multi-tabbed forms for electronic patient data entry and review. Other examples include the teacher training (GTP online application form) for NCTL (DfE) before it was moved to UCAS.	96	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Demonstrate knowledge of working with 3rd parties to develop standard interfaces and data exchange portals	Texuna have worked with DfE teams and 3rd party suppliers on several DfE projects for many years. Two examples are: * GIAS (Edubase replacement) - working with a GDS team and 3rd party designers to integrate the legacy schools database to a GDS compliant Single Page App that better meets user needs. * Secure Access - the Single Sign-On service integrates at least 10 application platforms with a half dozen different stakeholders and independent suppliers. CAB meetings and KITs ar essential to the smooth running of the live service and ongoing development and change environment.	93	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Have experience of successfully transitioning projects into a live service environment within a government department within the last 12 months	Texuna delivered scalable, secure data collection workflows for The National Ofsted Fostering Data Collection project, from Discover to Live in less than 6 months. It was launched successfully in May 2018 to streamline data submission: data collection, validation, immediate data quality reporting and sign-off. Texuna delivered solution that focused on user needs and outcomes. We reused available GDS Single Page App design patterns and followed standards throughout user-centered agile sprints and iterative delivery reviews with internal stakeholders and external endusers. We introduced communication channel automation between Ofsted and Fostering agencies, helping Ofsted meet strategic objectives as confirmed by written feedback.	100	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Experience of developing web based application portal solutions for UK Government	Texuna developed web based application solutions for Government bodies. Our solutions are hosted on either Azure or AWS and are typically designed to be cloud portable and independent. For example, we work with the DfE to host GIAS on Microsoft Azure, using continuous integration and continuous deployment to cloud to automatically manage operations with other suppliers. We use cloud tools to implementation robust engineering designs for enterprise-level solutions, giving growth flexibility and scale. Other example: Ofsted Fostering Data Collection (2018) is a responsive web application is designed and implemented using the styles, patterns and components from the GOV.UK design system.	99	Not shortlisted	Not provided	
CPRD	Development of eRAP Portal	Experience of building easy-to-use-web-based responsive design and progressive enhancement to delivering a good experience on mobile devices	Our Tweakaboo, Indeemo, EduKit projects are all mobile ready responsive applications that work on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Our work with startups keep us up-to-date with the latest technologies and help us migrate best practices to government projects. Server-side rendering all work with CSS so that we can easily update and reflect branding changes when needed. Texuna integrate services following the GDS standards and guidelines for delivering public sector projects to the required level of usability and accessibility, e.g. Ofsted Fostering collection service, which also used the GDS frontend toolkit.	100	Not shortlisted	Not provided	
Buckinghamshire County Council	Building a digital adoption service	Provide a multi-disciplinary service design team	Texuna have full-time multi-disciplinary staff who provide project and service continuity. We have 18+year track record flexibly resourcing projects, redeploying and re-assigning resources as each project needs dictate. We sometimes add freelancers into our team when additional skills are required. We engage in cross-training staff to upskill staff and provide project contingency. When the GIAS project kicked off we engaged in continual collaborative development across a number of sprints with other delivery teams. When the volume of work has fluctuated Texuna has increased or decreased the allocated resources to ensure targets are met without wasting resources.	96	Not shortlisted	Not provided	**Texuna scored 13 out of 18 in total, with shortlisted suppliers scoring 14 and above so it was really close**
Buckinghamshire County Council	Building a digital adoption service	Adopt user-centred and agile approaches consistent with the Government Digital Service Standards	Texuna understand the GDS framework, design principles and Digital Service Standard and work with GDS Standards and tools to engineer our solutions. Texuna committed to deliver a GDS (Government Digital Service) compliant, live, nationwide data collection portal within 4 months with regular deliveries using an Agile methodology with collaborative sprints. Ofsted "Setting Goals" workshops engaged users with 'show-me don't tell-me' sessions to empathise with their methods and motivations, and test our assumptions. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. Written feedback was very positive.	100	Not shortlisted	Not provided	
Buckinghamshire County Council	Building a digital adoption service	Understand how to meet the needs of a range of users, including those lacking digital skills	Texuna solutions are designed for use by large, diverse user communities. Intuitive design is paramount to minimise help and training needs while ensuring the requirements are met. For example Texuna received excellent feedback from Jisc after project completion. Texuna conducted 100+user interviews and workshops using visual, interactive design-thinking techniques to share ideas and ultimately solicit and verify the real needs and strategic objectives of all stakeholders. For Ofsted we iterated prototype screens with regular user-testing during Alpha before formalising agile delivery and UAT during Beta. We worked with groups of users to determine specific needs and issues.	96	Not shortlisted	Not provided	
Buckinghamshire County Council	Building a digital adoption service	Share their work freely and openly with the Council and wider government digital community	As open source software experts Texuna support open standards. We create flexible, vendor-agnostic systems, always selecting the most appropriate tools for task to provide flexibility for future growth and avoid lock-in. Texuna is ready to work freely and openly with the Council and wider community. For DfE - SecureAccess Texuna combined a range of open source libraries into IAM system with Role-Based Access Control. Budget and effort focused on integration of 11 systems and services with SSO. We contributed to Shibboleth community code related to Single Logout. We contributed code to Pentaho Data Integration community.	93	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Buckinghamshire County Council	Building a digital adoption service	Experience of a similar project	Ofsted have been running annual collection to gather fostering data for many years. This was felt to be an overly resource-intensive process, with pains felt by both agency sector and Ofsted themselves. Ofsted contracted Texuna to pickup alpha prototypes and deliver working fostering portal to automate data collection process and eliminate significant manual effort of users and staff. Texuna engaged with Ofsted to deliver the solution within the tight timelines set out by Ofsted. We introduced communication channel automation between Ofsted and Fostering agencies, helping Ofsted meet strategic objectives as confirmed by written feedback. Ofsted-Fostering Data Collection went live in May18.	100	Not shortlisted	Not provided	
Buckinghamshire County Council	Building a digital adoption service	Share digital and design skills with Council staff	We collaborate with client teams from the start to ensuring self-sufficiency after handover. Texuna worked onsite with Jisc over the last 3 years to establish an in-house EDW team, a governance process and introduce an agile methodology. We maximised staff engagement during design and implementation. Texuna were working alongside Jisc team daily-basis with joint responsibility for delivery of some releases. This was active coaching and mentoring for Jisc staff at each stage of development cycle from requirements to testing. We are very happy to share our lessons and gotchas with the team in open dialogue and happily share suggestions and recommendations.	100	Not shortlisted	Not provided	
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Have experience of working to the GDS service design manual	Texuna understand the GDS framework, design principles and Digital Service Standard and work with GDS Standards and tools to engineer our solutions. For Ofsted Texuna committed to deliver GDS compliant, live, nationwide Data Collection portal within 4 months with regular deliveries using an Agile methodology with collaborative sprints. Ofsted web-application was designed and implemented using the styles, patterns and components from the GOV.UK design system. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. Written feedback from Ofsted staff and end-users was very positive.	97	N/A	Not requested	
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Have built a service that has passed a Government Digital Service standard assessment	Texuna have successfully delivered many services that meet GDS standards and continue to work on these projects as they develop further and push into official Live phase. Good example is our DfE work on GIAS. Project successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 3 years. EduBase2 is now re-engineered with RestAPIs for GIAS and waiting GDS Live assessment. Similarly we had successful approval to run Secure Access for many years on Eduserv and subsequently on AWS. Texuna also worked with Ofsted on the Fostering Data Collection service subject to GDS approval.	97	N/A	Not requested	
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Have experience designing services for a wide range of digital skills and confidence	Texuna solutions are designed for use by large, diverse user communities. Intuitive design is paramount to minimise help and training needs while ensuring the requirements are met. Texuna combines evidence gathered in workshops with user survey feedback to inform desired user behaviours and outcomes. We combine GDSstandards and best practices with design thinking and user journey mapping. Accessibility is tested with GDS recommended toolsets to at least WC3-AA level and independently tested. For Ofsted we iterated prototype screens with regular user-testing during Alpha before formalising agile delivery and UAT during Beta. Usability feedback was collected through observation, audio and video capture.	100	N/A	Not requested	
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Provide a multi-disciplinary team including user research, service design and development skills	Texuna have full-time multi-disciplinary staff who provide project and service continuity. We can place our team onsite for project duration including skills mentioned above. We have 18+year track record flexibly resourcing projects, redeploying and re-assigning resources as each project needs dictate. We engage in cross-training staff to upskill staff and provide project contingency or sometimes add freelancers when additional skills are required. When GIAS project kicked off we engaged in continual collaborative development across number of sprints with other delivery teams. When volume of work has fluctuated Texuna have increased/decreased allocated resources to ensure targets are met without wasting resources.	99	N/A	Not requested	
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Ability to support development of REST APIs to Hackney's standards	Texuna have worked with GDS specifications to deliver a fully functioning RestAPI to join the legacy Edubase backend to a new Single Page App frontend (DfE Edubase-GIAS). Texuna used YAML-based documentation to automate code generation in a language independent way. This streamlines development with well formatted documentation and test stubs provided through Swagger - also allowing frontend and backend teams to work more independently. Simplified integration code and automatic test scripting also gave high quality assurance long term over the REST API. Performance and penetration testing guarantees security and availability of live services.	92	N/A	Not requested	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Experience of developing design patterns that can be reused for other services	Texuna have deep practical experience designing and implementing reusable design patterns from open source libraries. For example, we maintained and reused a Task List pattern for 15+ years for many projects: *NCTL (ITTDMS); *Staff Individualised Records (LLUK); *Fostering Data Collection (Ofsted). For Ofsted we used GDS Single Page App (SPA) libraries with API to eliminate server-side rendering. Similarly Dept for Finance (Ireland) reused a range of GDS frontend design patterns and libraries in a SPA. Texuna extended these GDS patterns for handling unstructured data, document viewing, online annotation and redaction. We also re-use Infrastructure as Code with portable Terraform scripts.	100	N/A	Not requested	
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Agnostic of any existing software	Texuna create robust, future-proof, secure and vendor-agnostic solutions selecting the most appropriate tools and ensure clients have future portability options to avoid lock-in. We specialise in integration of open source libraries, open standards and industry standard proprietary tools to find the fastest, most cost-efficient and user-centred solutions. We implement architecture across heterogeneous in-house/cloud environments, mixing proprietary SaaS and traditional RDBMS vendors through various DWH projects with Jisc/OBU/LMU. Our metadata-driven approach includes delivering open source data governance wiki tools that integrate and share data lineage. We worked with Ofsted(2017-2018) to implement GOV.UK services and combined Angular-JS front-end SPA using PostgreSQL and Springboot/JHipster.	100	N/A	Not requested	
London Borough of Hackney Council	Assess technology needed to support delivery of an affordable, efficient housing needs service	Have an understanding of Housing Needs and relevant legislative requirements	Texuna have deep understanding and practical experience of government needs. Texuna has been supplier to Government bodies since 2003. We have developed and currently manage following services for Government and public bodies: *DfE - GetInformationAboutSchools; Secure Access; ITTDMS *OfS - National Student Survey *Ofsted - Fostering Data Collection *PHE - EPIDOS *JISC - EDW All Texuna pubic sector implementations have passed gateway standards reviews and deemed fit-for-purpose. We have formalised our agile processes under ISO9001 with BSI audits. Security and privacy-by-design is fundamental to our approach. All staff are trained and contractually bound to processes for security and GDPR compliance.	100	N/A	Not requested	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of experience of using GDS Design Principles and Digital Service Standard.	Texuna implement the 18 Digital Service Standard principles. We deliver the GIAS backend, collaborating with DfE and OliveJar in passing several GDS reviews, penetration testing and risk/security assessments. We extensively use agile techniques such as 2-week Sprints with user-focused reviews and team retrospectives and backlog grooming in modern tools like Azure DevOps. We partner with our clients and users to empathise and understand needs, creating designs centred on their goals and journeys. We test assumptions on design through prototypes and beta deliveries together with users in sprint reviews. We similiarly delivered Ofsted Fostering Data Collection following GDS guidelines in 2018.	100	Not shortlisted	N/A	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of experience in designing citizen-facing digital services.	Texuna solutions typically have multiple end-user types including internal and external users. In a recent endeavour with the DfE, the analysis of the Data Directorates Legacy Systems was in place. A full review and audit was conducted whilst carefully considering design for 23,000 schools and 153 local authorities. This allowed for business decisions to be made to align with departmental strategic goals. For the NSS project, we have delivered a Dissemination and Consultation Portal. Used since 2014 to assess stakeholder needs, usage has seen a 10% growth annually, feeding into the overall design of the system.	96	Not shortlisted	2 points (3 max)	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of experience of developing software that complies to Government security guidelines	Texuna are certified to ISO 27001 company-wide by our external auditors BSI (since 2009). We have passed Government audits and RMADs assessments including third-party penetration tests, and we hold Cyber Essentials with IASME. Our developers follow OWASP best practices and we internally penetration test all solutions. We manage security risks at both project and organisation level and record security incidents with root-cause analysis so we resolve and minimise re-occurrence. Urgent issues impacting Production are immediately addressed to minimise downtime. Texuna has delivered projects complying with government standards and guidelines: GIAS, ITTDMS, STA's ItemBank and the Single Sign-On IAM service SA.	100	Not shortlisted	2 points (3 max)	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of experience of MS Azure: Hosting/platform/monitoring, Visual Studio Team Services, Infrastructure Automation, IaaS/PaaS, Blob Storage.	Texuna already operate within the DfE Azure environment using all Azure DevOps, tools cited and GitHub - we are comfortable with multiple platforms, tools and languages. For GIAS we developed API messaging standards via YAML and Swagger and migrated from IAAS to PAAS. We delivered value for money while engineering for automation, ease of management, growth and change. We use Terraform and Ansible for infrastructure automation. Over 2+ years on GIAS we introduced performance and monitoring improvements with automated restarts to assure better system behaviour. We enhanced the GIAS API system through a clustered architecture to increase availability and resilience.	100	Not shortlisted	2 points (3 max)	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of experience of implementing, maintaining and interacting with a variety of IDAM solutions and of developing software that complies to Government security guidelines	Texuna built the DfE SA IDAM tool and worked with other DfE suppliers to ensure it integrated with 11 legacy systems including GIAS where we implemented the integration. We have also worked with the DfE team responsible for DfE Sign-In to ensure that authentication of users for GIAS is maintained (migration was successfully completed at end of 2018). For Jisc we provided secure IAM integration between on-prem Active Directory and AWS cloud services, including AWS-based dashboard services to their Members portal. Texuna has delivered RBAC framework based projects complying with government security guidelines : GIAS, ITTDMS, STA's ItemBank, Secure Access.	100	Not shortlisted	3 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of experience of using Agile/Scrum methodology to iteratively architect/develop high quality government digital services to GDS standards.	Texuna actively deliver on GIAS using Scrum agile methodolgy. We architect and develop the back-end services for GIAS and expose an API to a Single Page App frontend according to GDS standards and Service Manual. We participate fully via tools like Redmine, Zoom, Slack and Azure DevOps to manage Sprint planning, prioritisation, backlog grooming and team communications. We use daily standups with sprint reviews and lessons-learned retrospectives to ensure scope is managed, users are continually appraised and can provide feedback. Texuna has delivered over 15 GIAS sprints from start to finish with DfE using Agile Scrum and Kanban DevOps methodologies.	100	Not shortlisted	2 points (3 max)	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of ability for all roles to work effectively and collaboratively with other delivery teams both internal and external to DfE to achieve shared goals and objectives.	For the GIAS project, Texuna has been working closely with the DfE and Olive Jar since 2017. The project has split the application into a front-end UI, developed by Olive Jar and a back-end Database and API service delivered by Texuna. Active partnership between the 3 key parties has been crucial for this project, with ongoing discussions handled via Slack, Zoom meetings or Skype as required. Texuna participates in planning meetings with the DfE and Olive Jar, actively engaging with and advising on all elements of work to ensure the continued success of the GIAS project.	96	Not shortlisted	2 points (3 max)	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of ability to provide and flex multi-disciplinary team roles as required in line with internal capability and capacity.	Texuna have full-time multi-disciplinary staff who provide project and service continuity. Resources can be available for short-term periods. Texuna has been working on the GIAS project since 2017. Over this time period, work loads have increased and decreased as requirements changed. The initial phase of development had a consistent workload across a number of months. Post go-live this has decreased. Texuna has increased or decreased the allocated resources to ensure targets are met without wasting resources. Texuna has also proved adept at providing additional role types when needed, including providing on-site BA and User Researcher roles for the DfE.	98	Not shortlisted	Nice-to-have skills or experience	
DfE	Agile development of a replacement for Key to Success and School to School	Provide evidence of experience of leading, coaching, mentoring and upskilling people in agile techniques and roles to build agile capability within existing teams.	Texuna work collaboratively building internal competence and capability by mixing lean, agile and kanban techniques. During the Jisc and Dell projects, Texuna used a series of workshops and written documentation to facilitate the upskilling of project staff. The notion of "Train the Trainer" approach was taken, in which a member of staff was upskilled, and could continue upskilling additional staff internally. As part of our work with the OfS, Webinars were used to upskill HEI, FEC and AP end-users on the portals developed. This led to an increased usage during Publication time, further raising the profile of the NSS.	100	Not shortlisted	Nice-to-have skills or experience	
DfE	Transformation Service Delivery Capability	Provide high-level directional Business Analysis across the digital portfolio	Texuna's Business Analysts focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements. Texuna worked with the DfE in 2019 as part of a discovery phase to analyse the requirements and needs of legacy systems. Texuna conducted 3-month discovery phase to analyse source systems, looking at requirements through an AS-IS and mapping to a To-Be state. A report was provided by the Business Analyst with relevant recommendations based on the directive and policy advised.	100	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	High-level working knowledge and understanding of agile methodology, through Delivery Management.	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. This AGILE methodology runs numerous software development/data management/warehouse/analytics projects. Texuna has delivered over 20 GIAS (Get Information About Schools) Agile sprints with DfE using agile methodology. Texuna participates fully via tools such as Zoom, Slack and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation based on user stories and team communications. Daily standups are used to manage issues with bi-weekly sprint reviews and lessons-learned retrospectives ensuring scope is managed and that users are continually appraised and can provide feedback.	100	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	Evidence of recommendations for the creation of new and existing digital services	Texuna worked with Jisc across 3 independent business units with many legacy systems on a 2-year enterprise data warehouse project. Texuna conducted a 4-month discovery phase analysing sources, looking at governance, data owners and future directions. Design-thinking workshop techniques were used to break down barriers, improve communication, and generate cross team collaboration with paper-based tools. These helped create a common conformed language and shared information architecture across 120+ Jisc services. Texuna also built a business model canvas with senior business leaders to highlight gaps and weaknesses. Texuna also partner with Adhoc Global for IA, UXD and additional content expertise.	99	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	Manage the full product lifecycles inc business analysis, user research, design, delivery and the continuous improvement of one or more transactional services or platforms	The EduBase system was re-engineered in 2017 as Get Information About Schools (GIAS). User research sessions were carried out throughout the life of the project to gather the user's main pain points, primary tools used and suggestions they may have. These were used to form the basis of the DfE's priorities of development. Texuna delivered the solution following Digital Service Standards using user-centered agile sprints and iterative delivery reviews with internal stakeholders and external end-users. Texuna developed an updated API-driven database of educational records, providing the database, validations and performance for this service, assuring over 1,000 concurrent sessions at peak.	100	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	Develop and deliver communications plans for services/products which engages users across many channels	Texuna engage and communicate effectively with stakeholders, business, public users across divisions. Texuna worked onsite with Jisc in 2016-17 to establish a new warehouse team, governance process and install an agile methodology. Working with experts and stakeholders at all levels and roles across business units allowed Texuna to create a common business language and ontology for data. Texuna extended the in-house team to help develop internal competence and capability. Texuna are always mindful of people's contribution and deference to expertise, using visual problem-solving tools to arrive at a shared understanding of problems and solutions to reach desired outcomes.	98	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Transformation Service Delivery Capability	Proven experience of working closely with other team members on rapid prototyping and delivering at pace	Texuna have years of prototyping experience with B2C startups with video (Indeemo), mobile (Checkmate), and web technologies (Edukit, Alison.com). Texuna combine prototyping, continuous integration and same-day deployment of code, based on user feedback and adjustments. Texuna can, if needed, scale up user research and recruit user research panels to better inform UI/UX improvements. For Fostering Data Collection we completed a public Beta within 120 days, going from paper ideas to production-ready code through ongoing sprint show-and-tell with feedback between developers, users and stakeholders. Tools such as Balsamiq and InvisionApp were used to transform wireframe alternatives into realistic UI designs for development.	100	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	Experience taking products and services successfully through different phases of the delivery lifecycle and assessment process	Texuna have successfully delivered discovery/alpha/beta projects aligned to the GDS Technology Code of Practice, standards and guidance and continue to work on these projects as they develop further and push into official Live phase. This includes user research, agile delivery and Test-Driven-Development coding. Texuna's work with the DfE on the GIAS project is a good example of this. The project has successfully passed several reviews, external penetration testing, risk and security assessments in the last 3 years. GIAS has been well received and Texuna is continuing with a new scope of work in 2019 as GIAS moves from Beta to Live.	100	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	Provide insight, structure, guidance and support to digital delivery programmes	Texuna have successfully delivered projects aligned to the GDS Technology Code of Practice, standards and guidance. This includes user research, agile delivery and Test-Driven-Development coding. At Ofsted, Texuna delivered the first online Fostering Data Collection service in Q1 2018. We collaborated on the redesign according to GDS guidelines, and feedback from Ofsted and users has been very positive. For the Secure Access project, Texuna delivered a solution which allowed for single sign-on for 10 distinct DfE applications. All updates to SA required close collaboration with stakeholders from all 10 applications to ensure they were unaffected, with constant communication being key.	100	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	Advocate for the importance of agile, iterative and user-centred methods as set out in the Government Service Manual	Texuna mix lean, agile and kanban techniques with any tools already in use to improve transparency and speed. Texuna can help clients unfamiliar with Agile by engaging and leading them. Texuna worked with the DfE in a discovery project, leveraging user research skills from partner company Ad-Hoc Global to re-design and implement a new communication channel for the sector. This involved user research into existing tools and engaging stakeholders through interviews and surveys. This led to the adoption of Slack within the Data Directorate to serve as a communication bridge between the DfE and 23,000 schools.	95	Not shortlisted	Not provided	
DfE	Transformation Service Delivery Capability	Proven experience prioritising user needs (using qualitative and quantitative data) with the team and incorporating user needs	Texuna will use a RICE matrix to prioritise development, or a MoSCoW matrix to govern backlog priorities. The backlog of requirements is continuously updated for sprint planning to reflect any changes. For the Office for Students, Texuna hosts the NSS Results Portal that features both qualitative and quantitative data made for analysis to the sector. Each year a series of requirements are produced and prioritised for the upcoming Publication. This involves features or amendments to existing datasets. Meetings are conducted on a weekly basis, to ensure the backlog is groomed and any changes can be reflected in a timely manner.	100	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of creating services built around: NodeJS, Ruby, OpenID Connect, SAML 2.0, Azure PaaS, Open Source	As an open source solutions provider Texuna integrate various tools and libraries including GDS frameworks. Texuna has a bias towards Open Source solutions and technically we are experienced in all tools cited with sufficient experience to work across past and future technologies to deliver value for money, platform independence and development execution. Texuna's front-end team produce GDS-compliant solutions using AngularJS, JQuery, SASS mixins and other javascript libraries. For example we developed and delivered cloud-based NodeJS microservices for Irish mobile app start-up CheckMate. Texuna utilise Ruby extensively through the use of Watir, an open source library for automating tests. In addition, a number of internal tools have been built using Ruby. For the Secure Access (SA) solution Texuna combined a range of open source libraries into an IAM system with RBAC. SA integrated with ActiveDirectory/LDAP/SAML 2.0/OpenIDConnect to link multiple bespoke DfE services. Integration with legacy user groups reinforced existing permissions and assured these were applied to restrict access through search controls so that only authorised users could see any linked systems. Texuna already operate within the DfE Azure environment using all Azure DevOps and tools. The GIAS Application is hosted in Azure, with all elements of the application being formed using Azure PaaS elements.	200	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of succesfully delivering an identity & access management service	Texuna built the DfE SA IDAM tool and worked with other DfE suppliers to ensure it integrated with 11 legacy systems including GIAS where we implemented the integration. We have also worked with the DfE team responsible for DfE Sign-In to ensure that authentication of users for GIAS is maintained (migration was successfully completed at the end of 2018). For Jisc we provided secure IAM integration between on-prem Active Directory and AWS cloud services, including AWS-based dashboard services to their Members portal. Texuna has delivered RBAC framework based projects complying with government security guidelines: GIAS, ITTDMS, STA's ItemBank, Secure Access.	98	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Extensive knowledge of GDS approach to service delivery	Texuna implement the 18 Digital Service Standard principles. We deliver the GIAS backend, collaborating with DfE and OliveJar in passing several GDS reviews, penetration testing and risk/security assessments. We extensively use agile techniques such as 2-week Sprints with user-focused reviews and team retrospectives and backlog grooming in modern tools like Azure DevOps. We partner with our clients and users to empathise and understand needs, creating designs centred on their goals and journeys. We test assumptions on design through prototypes and beta deliveries together with users in sprint reviews. We similarly delivered Ofsted Fostering Data Collection following GDS guidelines in 2018.	100	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of Agile software delivery	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. This AGILE methodology runs numerous software development/data management/warehouse/analytics projects. Texuna has delivered over 20 GIAS sprints with DfE using agile methodology. Texuna participates fully via face-to-face meetings or using tools such as Zoom, Slack and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation based on user stories and team communications. Daily standups are used to manage issues with bi-weekly sprint reviews and lessons-learned retrospectives ensuring scope is managed and that users are continually appraised and can provide feedback.	98	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of delivering services in the Public Sector	Texuna have 15+ years public sector experience managing sensitive data, with deep understanding and practical experience of government needs. We provided IAM (Secure Access) for the DfE for a number of years. We currently patient record data management solution for PHE for nuclear industry workers and we manage student data for our university data warehouse SaaS. Texuna delivered Ofsted Fostering Data Collection in Q1-2018, and DfE GIAS project in 2017 using agile methodology. We work tirelessly to put users and data first with technology as an enabler. All Texuna pubic sector implementations have passed gateway standards reviews and deemed fit-for-purpose.	97	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of working in Multi-disciplinary teams	Texuna deploys multi-disciplined teams and comfortably works with mixed client teams. Texuna worked onsite with Jisc in 2016-17 to establish new warehouse team, governance process and install agile methodology. In 2019 Texuna worked on site with the DfE as part of a discovery phase to analyse the requirements and needs of legacy systems. Texuna conducted 3-month discovery phase to analyse source systems, looking at requirements through an AS-IS and mapping to a To-Be state. A report was provided by the Business Analyst with relevant recommendations based on the directive and policy advised.	92	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of building and testing an end to end digital service demonstrating a high level of quality	Texuna actively deliver on GIAS (since 2008) using Scrum agile methodology. We develop and test back-end services for GIAS and expose API to Single Page App frontend according to GDS standards and Service Manual. GIAS application has helped end-users utilise the functionality which was always available in a much more user-friendly manner. The system has also increased the amount of self-service that is available to users, meaning DfE have been able to reduce their service desk resources needed to support the application. The system has increased the overall quality and trust in the data being held on the system.	99	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of DevOps engineering - particularly deploying builds,increments and releases through continuous integration and deployment pipelines	Texuna specialise in DevOps and pipelines. Texuna have architected and engineered full-stack enterprise solutions and operate substantial cloud-based DevOps infrastructure with Enterprise data warehouse and reproducible analytical pipelines (Jisc, OBU, LMU, OfS) and Hadoop-based big data for financial services. We deliver a Reproducible Analytical Pipeline with PDF markdown for each University's annual OfS National Student Survey (since 2014), automating sophisticated publications. For 15+ years with Dfe/NCTL ITTDMS, Texuna designed and operated a repeatable, quality assured automated analytical pipeline to reproduce annual Performance Profiles, with dozens of other analysis datasets for different personas. Texuna experienced Dev/Ops staff (5years experience) are immediately available.	98	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of scripting environment builds and changes	We work with the DfE to host GIAS, using continuous integration and continuous deployment to Azure to automatically manage operations together with other GDS suppliers. Our CI/CD is based on: * GIT for version control * Jenkins CI Pipelines for testing, dependency and multi-environment management, package preparation and delivery * Hashicorp Terraform for provisioning infrastructure (re-using modules with multi-environment setup) * Ansible is used for configuration management, deployments and building images with Packer * Hashicorp Packer for building server images * Hashicorp Vault for managing secrets in CI/CD These approaches are also used in other internal and client-facing tools.	94	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Qualification in NodeJS	Texuna supports open standards and are vendor agnostic, giving future portability options to avoid lock-in. Our teams are adept in delivering solutions in a number of programming languages and frameworks including AngularJS, NodeJS and Java, as well as a number of databases including SQLServer, PostgreS and MongoDB. Over the last 24 months we delivered a NodeJS based microservices solution for Irish mobile app start-up CheckMate which is used for community neighbourhood watch. This application is used by a number of key parers including the Irish police service (An Garda Síochána).	90	Not shortlisted	Not provided	
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of passing GDS assessments	Texuna have successfully delivered discovery/alpha/beta projects aligned to the GDS Technology Code of Practice, standards and guidance and continue to work on these projects as they develop further and push into official Live phase. Texuna's work with DfE on GIAS project is good example of this. Project has successfully passed several reviews, external penetration testing, risk and security assessments in last 3years. GIAS has been well received and Texuna is continuing with a new scope of work in2019 as GIAS moves from Beta to Live. Texuna are also certified by BSI for security, quality and service standards and hold Cyber Essentials.	100	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Agile Delivery and CI of the departments strategic Identity and Access Management System	Experience of working in public sector in the UK	Texuna have a strong track record of successful project delivery to the public sector and particularly to DfE and government agencies. We designed ITTDMS (TTA-TDA-NCTL-DfE) from floppy disk survey to fully automated online collection and publication service in 2003. Texuna implemented first cloud DWH in the UK education sector for Jisc and OBU. Other relevant projects include: *NSS results dissemination for OfS *GIAS for DfE *Edukit - SIMS data collection and wellbeing survey for UK school pupils *Itembank solution for STA Texuna are audited by BSI for ISO9001, 20000 and 27001 certifications without exclusions to give the highest level of assurance.	97	Not shortlisted	Not provided	
Greater London Authority	London Datastore Discovery	Experience of scoping, defining and delivering discovery phase for websites of public sector organisations	We have 15+years experience engaging public sector stakeholders to build empathy in visual design-thinking workshops to deliver successful projects. Envisioning workshops, Interviews, prototypes, 'show-and-tell' sessions and prioritization workshops identify and confirm needs, scope and priorities. Public sector customers include Public Health England, Department for Education, Office for Students, Ofsted and UK universities. From enterprise data warehouses, including big-data/ITO and data mining, through to public data publication sites with millions of visitors and hundreds of integrated systems, discovery phases elicit and analyse user and system needs. Outputs define scope and set strong direction allowing subsequent phases to successfully deliver on needs.	99	Not shortlisted	1.5 points (3 max)	
Greater London Authority	London Datastore Discovery	Able to draw upon appropriate skills mix to inform discovery including UX, audience-mapping (personas, needs/user stories, user journeys), user research, user insight, analytics, visual design etc.	Texuna are able to draw from their own pool of ~30 staff to provide an experience multi-disciplined team. This accomplished and qualified team, with strong design and user research capabilities, will ensure needs are understood and options fully explored. Staffing is aligned to the GDS manual, to: * Develop discovery outcomes identifying approaches based on personas, stories and analysis of the existing tool. * Explore these approaches through quick Hi-Fi prototypes (patchwork-video-prototypes) tested with users to evaluate hypothesis (commonly focused on the end-to-end most complex journey and needs). * Iterate designs, prototypes and discovery outcomes based on user feedback.	96	Not shortlisted	1.5 points (3 max)	
Greater London Authority	London Datastore Discovery	Experience delivering projects in the field of government/public sector data	Texuna has a very strong track record of successful public sector data project delivery. This encompasses Discovery, Alpha, Beta, Live and ongoing service management (several data projects are fully managed including public 1st line support). These include high-profile business critical projects. To name a few: * Identity and authentication data management for DfE (all school users), and National Registry of educational providers, * The OfS's highest-profile data publication, * Data integration and dissemination solutions auditing £100M+ of government spend * Ofsted's highly sensitive fostering data project These public sector deliveries were on-budget and to-time, passing gateway reviews deeming them fit-for-purpose.	97	Not shortlisted	1.5 points (3 max)	
Greater London Authority	London Datastore Discovery	Able to develop a discovery report/output/recommends that can easily be developed into a backlog for Alpha (either as enhancements to existing website or as new development requirements)	Texuna methods follow a documented methodologies to deliver robust products. This includes clear presentation of complex findings in order to reach agreed consensus models and plans. Personas/empathy/journey maps, information supply chains and prototypes are common tools to help define Epics in Agile nomenclature. Further breakdowns by business benefits and RICE prioritisation are also extremely valuable for backlog prioritisation of user stories alongside clear presentation, discussion and approval. The recent Ofsted project highlights Texuna's methodology of starting lean, building from paper touchpoints to wireframes and video composites to hi-fi interactive prototypes as hypothesis are ideated in Discovery and tested in Alpha.	100	Not shortlisted	1.5 points (3 max)	
Greater London Authority	London Datastore Discovery	Able to draw upon wide variety of methods in order to develop a robust understanding of users and their needs	Texuna delivers solutions firmly focused on user needs and outcomes. Texuna's designs typically have multiple end-user personas spanning from strategic to operational levels or the general public. Each persona requires tailored approaches to develop a full understanding of needs. Common in all is the need for visual sensemaking. This closes communication gaps and helps personas to describe their data utilisation. Methods such as Customer Journey Maps, Information Supply Chain models, Data Values Maps and patchwork-video-prototypes are particularly valuable in defining needs within dataflows. User-centered agile sprints and iterative end-user reviews help to test and refine findings discovered.	97	Not shortlisted	2 points (3 max)	
Greater London Authority	London Datastore Discovery	Experience of agile product development	Texuna resolutely believe in the value of an Agile mindset in product and project delivery, this includes understanding the fine balance between flexibility and discipline to co-ordinate teams in meeting commitments. "Sufficient Up Front Design" will be essential in GLA's project to allow for the early delivery of prioritised value. Texuna's numerous agile projects often involve becoming an extension of customer teams, using tools such as Zoom, Slack, Pivotal, Jira and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation. Daily standups manage blockers, with bi-weekly sprint reviews and retrospectives ensuring progress is understood by all and continually appraised.	100	Not shortlisted	2 points (3 max)	
Greater London Authority	London Datastore Discovery	Experience of digital publishing and conveying complex messages	Texuna have much experience of messaging services, both technical and policy focused. This also includes 1st-line public data project service desks. Firstly, Texuna are an advocate of open data. Self-publishing governance tools are also commonly deployed alongside solutions allowing users to search, discover and understand data and services. Several Texuna services also include compliance governance structures. Such services involve regular messaging to effectively manage stakeholders and change. For instance, it is common to send tens-of-thousands of messages to schools informing them of new data needs, with hundreds of communications also sent to data integrators to describe new/changed services.	98	Not shortlisted	1 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Greater London Authority	London Datastore Discovery	Passionate about using data creatively to deliver innovative solutions, solve specific user problems and drive organisational change	Texuna take great pride in the innovation and business benefits delivered to customers. 15 years ago, Texuna integrated disparate dataflows to deliver novel sector-wide processes for funding, performance tables and ministerial questions. Today Texuna offer cloud-first dev-ops containerisation, Data Mining, Machine Learning and AI as-a-service to central government. This highlights how Texuna have continually innovated new data services delivering greater business benefits through modern technology and understanding needs. Innovation is not limited to technology. Analysis methods and services are also at the forefront of modern thinking. A good example is the university collaboration and research on visual workshopping found: http://datavaluemap.com.	100	**Not shortlisted**	**2 points (3 max)**	
Greater London Authority	London Datastore Discovery	Understanding of the modern data landscape	Texuna specialise in innovative data management and delivery solutions that are fully compliant with GDS guidelines. Alongside this is a deep understanding and practical experience of public sector data landscape needs. Texuna have engineered full-stack enterprise solutions and operate substantial cloud-based DevOps infrastructure with reproducible analytical pipelines (including Enterprise Data Warehouse, big data/IOT and data mining). These are in proven production use at the Department for Education, Jisc and Public Health England. Texuna also recognise their ethical, compliance and legal obligations underlying the modern data landscape. This includes IS0-27001 BSI certification and fulfilling GDPR obligations as a data processor.	98	**Not shortlisted**	**1 points (3 max)**	
ESFA	National Careers Service Digital Personalisation	Provide a multidisciplinary complete team able to run a digital development through to completion - please give an example of where you have done this from start to completion	Texuna have a full-time multi-disciplinary staff to provide project and service continuity. Resources can be available for short/long term periods. Texuna has been working on the GIAS project since 2008. Over this time, workloads have varied as requirements change. The initial Discovery, Alpha and Beta phases had similar workloads and used different disciplined staff, across a number of months, often colocated with the DfE. Post-go-live resource adapted to DfE needs whilst ensuring targets were met. A similar approach was also used within Texuna's NCTL project. This service provided data to inform the decision making of individuals considering a teaching career.	99	**Not shortlisted**	**Not provided**	
ESFA	National Careers Service Digital Personalisation	Able to mobilise a discovery team to work in Coventry within 2 weeks of contract award. Specify whether you can meet this and provide example	Texuna has a long track record of flexibly resourcing projects, this includes redeploying and re-assigning resources as needs dictate. For example, the 2-year Jisc EDW project had similar short notice. Texuna provided a local team onsite (Bristol) of ~8 and a remote team of ~5 within 2 weeks of award. Texuna also accommodated to a second request at short notice for an independent team to further deliver a tactical project 1 month after work began. Texuna will assign a team to this project who follow Texuna's proven Agile and GDS aligned working methodologies, ready to work in Coventry within 2 weeks.	100	**Not shortlisted**	**Not provided**	
ESFA	National Careers Service Digital Personalisation	Full understanding and demonstrable experience in planning a digital development for each phase - please give an example of planning a digital development from the discovery onwards	Texuna deliver full lifecycle projects planning across and within phases, using an Agile delivery. High-level plans are based on customer Product Manager priorities. Epics, T-shirt sizing and RICE prioritisation support the understanding of needs, discussion and approval. Constant Backlog grooming and team Sprint Planning and Sprint commitment meetings, using Data and User Stories, are employed for more granular planning. Texuna manage the balance between flexibility and sufficient discipline to meet commitments. Texuna's Oxford Brookes University project started lean, focused on hypotheses ideated in Discovery, testing in Alpha, before delivering prioritised data needs both meeting commitments and allowing for change through Sprinting.	100	**Not shortlisted**	**Not provided**	
ESFA	National Careers Service Digital Personalisation	Evidence experience of integrating solutions into a live service. This must include processes followed and patterns adopted	Our projects demonstrate a deep understanding of solutions integrations, both acquiring and disseminating data, identity solutions, as well as integrating legacy services. For instance, the DfE SA IDAM solution involved work with various DfE suppliers to integrate 11 different systems. Texuna integrated the DfE's GIAS with UK's address look-up (OS Places API) and real-time GIAS data are shared with various systems, based on Microsoft Azure Service Bus. Recently Texuna's cloud-based data warehouse and member portal for Jisc was integrated with Active Directory facilitating single sign-on across cloud services. All work has demonstrated fostering effective working relations, with various suppliers, ensuring success.	100	**Not shortlisted**	**Not provided**	
ESFA	National Careers Service Digital Personalisation	Evidence experience of delivering solutions based on the Governments Digital Service technical standards. This must include adherence to each of the Technical Code of Practice criteria	Texuna have successfully delivered solutions aligned to the GDS Technology Code of Practice, standards and guidance. Our multidisciplinary teams adhere to technical codes across work, from user research through to security, privacy and penetration testing for DevOps. Recent evidence of experience includes Ofsted's 'Fostering Data Collection' and the DfE's 'Get Information About Schools' (GIAS) projects. Though adherence to both Technical Code of Practice criteria, both projects successfully passed several GDS reviews, external penetration testing, risk and security assessments. Services have been well received, with one project now sprinting to deliver on new needs, the second is moving from Public-Beta to Live.	100	**Not shortlisted**	**Not provided**	
ESFA	National Careers Service Digital Personalisation	Strong understanding of the Government Digital Service's design principles and digital service standard. This must be evidenced by successful assessments against the digital service standards.	Texuna understand the GDS framework, design principles and Digital Service Standard, having worked with GDS Standards, tools and staff to deliver solutions. Ofsted Fostering Data Collection is a strong example of leveraging GDS standards and guidelines successfully. GDS templates ensured the system's UI, look and feel, user journeys and architecture conformed to GDS allowing uncomplicated integration with other UK government systems. DfE's GIAS has taken a similar approach, with GDS reviews successfully for public beta roll-out. Formal feedback has been extremely positive, with the service is now delivering on new needs, leveraging principles and standards established, pushing to full live service	100	**Not shortlisted**	**Not provided**	
ESFA	National Careers Service Digital Personalisation	Detail your approach to ensuring implementation meets architecture designs. This must include any feedback and review cycles	Texuna have created design documentation for changes to GDS compliant projects, such as GIAS. This has the most recently updated environment architecture to a clusterised model. Commonly Texuna work with customers, such as the DfE, to agree and approve changes at formal approval meetings. This ensures that proposed changes are managed as they are iteratively delivered. Feedback is received on each of these iterations. Approval is formally granted through the work's deployment to a pre-production environment, when an external IT Health Check is carried out, including verification of implementation vs design. And verified work is then promoted to Production.	99	**Not shortlisted**	**Not provided**	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
ESFA	National Careers Service Digital Personalisation	Detail your approach to ensuring the right technology is used for the solution. This must include examples of evaluation and evaluation assurance	As a vendor-independent solutions provider, Texuna staff use their experience across a range of technologies to make key recommendations and decisions for projects. Project includes both very broad needs and very tight constraints. For instance, the Jisc EDW project married existing skills and tools (Tableau and SAP Business Objects), while also introducing new technology options adding value (Amazon Redshift and Pentaho). The GIAS project required analysis and recommendations of options considering the existing DfE Azure platform. Regular checkpoint meetings with stakeholders and independent reviews ensure that the best options are continually identified and maintained.	94	Not shortlisted	Not provided	
ESFA	National Careers Service Digital Personalisation	Evidence experience of developing complex solutions using .NET Core and the business benefits that the solution provided	Texuna have staff with a range of specialist skills including developers with asp.net in C#. A complex data management solution highlighting this Get Information About Schools (GIAS) for the DFE. This is an MS SQL server solution, hosted on Azure with a .net based front-end. The critical nature of this solution is well highlighted by the tens of millions of annual page views from the general public seeking information. The complexity is demonstrated through both the ~50 differing user roles governing data on education providers and services, and the ~60 systems integrated and receiving data from the service.	98	Not shortlisted	Not provided	
ESFA	National Careers Service Digital Personalisation	Evidence experience of developing serverless solutions. This must include API standards and scenarios in which serverless computing would be used	We have delivered cloud queue and scalable serverless architecture for customers including Ofsted and Edukit to collect and disseminate data from foster homes and schools respectively. Ofsted Fostering Data Collection conforms to GDS standards and guidelines. This includes use of GDS templates for both look and feels and integration with other UK government services. The GDS compliant architecture, hosted on AWS, ensures both scalability to meet peak collection demands, while also bringing cost-effectiveness. The Edukit School Information Management System data collection solution and cloud infrastructure follow similar templates. This solution securely acquires and manages UK primary and secondary school pupil data.	99	Not shortlisted	Not provided	
ESFA	National Careers Service Digital Personalisation	Detail and evidence processes for delivering quality software. This must include testing cycles and testing assurance	Quality assurance and security are fundamental to service delivery. All code is tested to high-quality secure development standards. Regression scripts are key to ensure agile sprint releases are correctly validated. Regression testing is automated against all code commits. Test scripts are version controlled via GIT. Texuna rigorously control code and data through continuous deployment, identifying potential problems early. For instance, 1500+ automatic in JISC's data pipeline solution. After Unit testing, API/service tests are executed via Selenium. Apache tools ensure performance, with OSS/OWASP guidelines for Penetration testing. PyTest and Allure automate data pipelines. lastly, all bug fixes are incorporated into automated tests.	99	Not shortlisted	Not provided	
ESFA	National Careers Service Digital Personalisation	Detail and evidence processes for delivering secure software. Considerations must be given to OWASP vulnerabilities.	Texuna are certified to ISO-27001 company-wide by our external auditors BSI (since 2009) and hold Cyber Essentials with IASME. Services are commonly submitted for Government security audits and RMADs assessments, including third-party penetration testing. Texuna developers follow OWASP best practices and all solutions are internally penetration tested. Standard procedures also include security risks management at both project and organisation level. Any security incidents that may arise follow ISMS procedures including root-cause analysis for swift resolution and minimising re-occurrence. High-profile projects delivered that comply with government standards include: DfE's GIAS and UK Single Sign-On IAM service, NCTL's ITT-DMS and STA's ItemBank.	100	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Demonstrable experience of successfully providing business analysis on a high profile large scale digital programme with a wide range of stakeholder groups.	Texuna Business Analysts worked across Jisc's 3 independent business units, ~150 stakeholders (including representatives for the HE sector), and an estate of dozens of legacy systems on a 2-year enterprise data governance, warehouse and BI project. A 4-month discovery phase elicited and analysed needs, strategy (operational to strategic), source systems, governance, data owners and future directions for upgrades and data integration. ~100 interviews and dozens of workshops were carried out across team boundaries to create a confirmed and shared information architecture for more than 100 Jisc services, including a consensus model for improved information delivery to the sector.	98	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Strong verbal, written and visual communication skills with the ability to proactively manage stakeholders and tailor to the needs of audience by collaborating on decisions.	Prior sector work gives Texuna insight to stakeholder and ESFA goals, objectives and environments. Texuna staff are excellent communicators placing collaboration and empathy-building as priorities. Thoughtful stakeholder analysis and management strategies promote a partnership approach engaging all levels of the business. Communications, user-centric workshops and research are tailored to stakeholder groups to test assumptions and Hypotheses. These use easy to understand low fidelity personas/empathy maps, journey maps, prototypes and user stories. Card-sorting, informed by Reach-Impact-Confidence-Effort matrices, promotes collaborative prioritisation and backlog decisions. A "show-not-tell" philosophy" and constant user engagement, such as sprint reviews, ensure progress is understood by all.	99	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Proven experience in delivering digital projects and products.	Texuna have been delivering public sector digital projects for 15+ years. In 2003, NCTL ITT-DMS data collection, statutory reporting and publication became Texuna's first fully digital, fully managed service. The success in understanding and meeting needs is reflected in the long term nature of all services delivered, some exceeding a decade's active use. From Texuna's earliest days, before GDS's formalisation, services often mirrored GDS standards. For instance, the user-centric needs analysis employed or task list pattern in user task management from NCTL's ITTDMS or ETF's Staff data collection. Recent nationwide digital services delivered include OfS NSS and Ofsted Fostering data collection.	99	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Proven experience of working closely with other team members on rapid prototyping and delivering at pace.	Texuna's staff have years of prototyping experience with public sector bodies and B2C startups. Ofsted's Fostering Data Collection private and public Beta completed within 120 days, moving paper ideas to production-ready code through sprint show-and-tells with effective communication between analysts, developers, users and stakeholders. Balsamiq/Axure/InvisionApp were used to transform wireframe alternatives into realistic delivery designs. Through working with startups Indeemo (video), Checkmate (mobile), Edukit and Alison.com (web technologies) Texuna's staff working practices are established in prototyping, continuous integration and same-day code deployment based on user feedback. A capability also exists in scaling-up user research and research panels, better informing UI/UX delivery.	100	Not shortlisted	Not provided	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
ESFA	Business Analysis capability (DfE)	Must hold relevant qualifications in Agile methodologies and have extensive practical experience of working in /leading Agile requirements work for large scale Agile delivery initiatives, with good knowledge/experience of SAFe.	Texuna analysts hold computer science degrees, which include Agile principles and methods. Texuna also sponsor Analysts on Masters degrees, encompassing Agile. Through work with a university, Texuna engage in Design Science Research on Agile practices and user engagement. In short, Texuna are very strong believers in an Agile mindset and "Sufficient Up Front Design", applying these principles in requirements elicitation and analysis on numerous projects. Tools such as Zoom, Slack, Pivotal, Jira and Azure DevOps support an Agile approach to backlog grooming, sprint planning and prioritisation. Daily standups manage blockers, with sprint reviews and retrospectives continually appraising progress and understandings.	100	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Evidence of recommendations for the creation of new and existing digital services.	Texuna's history is in the educational sector making recommendation to delivery business benefits through innovative digital services. Effective requirements analysis is key so consensus models, options and recommendations can be agreed. For instance, the OfS NSS service's recommendations to introduce a repeatable analytical pipeline. This automated process reduced costs/timelines, whilst increasing quality. This in turn supported OfS becoming an Official UK Publisher of Government Statistics. Additionally, Texuna's Jisc data warehouse recommended and reorchestrated dataflows/governance across dozens of systems. These delivered on data dissemination and process improvement needs, included the creation of an enterprise business model canvas with senior leaders.	99	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Proven experience of working with Product Owners, Developers and Testers, to elaborate Epics into User Stories that are deliverable and testable and that provide business benefit.	Texuna strongly believe in the value of Agile principles in service delivery, including constant customer collaboration, sufficient up front design (SUFD) and Sprints that deliver iterative meaningful benefits for evaluation. Texuna's Data and BI project at Jisc incorporated Discovery, Alpha and multiple Betas before a Live handover. Desired capabilities for different user journeys were defined as SUFD Epics, with RICE analysis and T-shirt estimates to clarified Product Owner priorities. Epics were groomed as User/Data Stories, with 1,000+ delivered through 2 week sprints over a year. After Sprints, reviews demonstrated new features, for customer testing, also facilitating buy-in for required change.	100	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Demonstrate expertise in maintaining the product backlog using appropriate tools (e.g. Jira and Confluence), ensuring it is prioritised accordingly with Business Owners.	Texuna have developed working practices and comfort with various tools supporting Agility from years of Agile project delivery. Texuna internally use Redmine for work management. This includes user stories with Kanban and Sprint planning boards to support an Agile prioritised backlog grooming. When partnering with customers, Texuna commonly adopt customer tools. These include Zoom, Slack, Pivotal and Jira. Prioritisation required to direct teams is supported in all tools, with high-level priorities using Epics and RICE matrices, User/Data Stories used for granular planning, sprint planning with customers defining sprint priorities, and daily standups managing blockers.	94	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Experience of creating and updating end-to-end user journeys, using evidence and user research findings to create easy to use services from complex policy.	Texuna use Design thinking and Lean methods to ensure Discovery and subsequent phases are user-led and evidence-based. Texuna uses feedback to inform User Journey mapping and User Stories; multi-stage user research to empathise with real people, understand their goals, test how different personas respond to workflow and design that is inclusive and accessible. For example on Ofsted prototype screens were iterated based on user testing to highlight specific needs and issues while also testing accessibility for digital inclusion. Wireframes were tested with stakeholders and users via Axure and Balsamiq, with iterative prototypes built on GDS libraries with Swagger-based YAML stubs.	99	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Hold one of the following professional Business Analysis qualifications: IIBA Level 3 – CBAP; BCS Advanced Diploma in Business Analysis; BCS International Diploma in Business Analysis.	Texuna takes pride in the development of staff skills and career progression. This includes sponsoring several staff on higher education courses. All Texuna Analysts tailor their own personal development plans, with input from senior analysts and line managers. Within the last year, several analysts have gone down the BCS SIFAPlus level 4 International Diploma in Business Analysis route. This includes successful BCS qualifications in Business Analysis Foundation, Business Analysis Practice Practitioner and Requirements Engineering practitioner (the later two qualifications based on v4 2018 syllabus). These analysts are expecting to complete the single outstanding BCS course and oral examination within 2019.	100	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Experience of passing GDS service assessments.	Texuna have integrated services and built solutions following GDS standards and guidelines to the required for several projects in recent years. The Ofsted Fostering Data Collection delivered in 2018 uses the agile methodology subject to the GDS Service Standard. The DfE GIAS work has successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. This includes both usability/accessibility and architecture reviews, including re-engineering of RestAPIs and recent clusterisation. Similarly Texuna had successful approval to operate cloud portable Secure Access (the DfE Single Sign-on solution for schools) for many years in Eduserv and subsequently on AWS.	100	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Experience of Microsoft product suite in the education sector.	Texuna staff work with proprietary software stacks, cloud services and open source software, this includes. This includes work with the Microsoft product suite, with considerable experience from work with the DfE. This includes SaaS data feeds such as Dynamics 365, as well as bespoke integration and the migrated legacy solutions from hosted environments to Azure cloud leveraging cloud services. A project highlighting this well is Get Information About Schools (GIAS) for the DFE. This was an MS SQL server solution working with a .net based front-end, which Texuna analysts delivered, and subsequently led a cloud migration to Azure.	97	Not shortlisted	Not provided	
ESFA	Business Analysis capability (DfE)	Experience in delivering public sector products/services.	Texuna has a very strong 15+ year track record of successful high-profile business critical project delivery, encompassing Discovery, Alpha, Beta, Live and ongoing service management (several fully managed, including public 1st line support). To name a few: * Identity and authentication management for DfE (all school users) (the SA project completed Dec 2018), and National Registry of educational providers (GIAS), * The OfS's high-profile data publication, the National Student Survey, * Ofsted's highly sensitive fostering data project, * The Standards and Testing Agency Item Bank for national SAT exam development These projects were on-budget, to-time, passing gateway and GDS reviews deeming them fit-for-purpose.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Demonstrable experience of successfully providing business analysis on a high profile large scale digital programme with a wide range of stakeholder groups.	Texuna Business Analysts worked across Jisc's 3 independent business units, ~150 stakeholders (including representatives for the HE sector), and an estate of dozens of legacy systems on a 2-year enterprise data governance, warehouse and BI project. A 4-month discovery phase elicited and analysed needs, strategy (operational to strategic), source systems, governance, data owners and future directions for upgrades and data integration. ~100 interviews and dozens of workshops were carried out across team boundaries to create a confirmed and shared information architecture for more than 100 Jisc services, including a consensus model for improved information delivery to the sector.	98	Not shortlisted	Not provided	

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DfE	Technology Directorate - Business Analysis digital transformation partner	Strong verbal, written and visual communication skills with the ability to proactively manage stakeholders and tailor to the needs of audience by collaborating on decisions.	Prior sector work gives Texuna insight to stakeholder and DfE goals, objectives and environments. Texuna staff are excellent communicators placing collaboration and empathy-building as priorities. Thoughtful stakeholder analysis and management strategies promote a partnership approach engaging all levels of the business. Communications, user-centric workshops and research are tailored to stakeholder groups to test assumptions and Hypotheses. These use easy to understand low fidelity personas/empathy maps, journey maps, prototypes and user stories. Card-sorting, informed by Reach-Impact-Confidence-Effort matrices, promotes collaborative prioritisation and backlog decisions. A "show-not-tell philosophy" and constant user engagement, such as sprint reviews, ensure progress is understood by all.	99	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Must hold relevant qualifications in Agile methodologies and have extensive practical experience of working in /leading Agile requirements work for large scale Agile delivery initiatives, with good knowledge/experience of SAFe.	Texuna analysts hold computer science degrees, which include Agile principles and methods. Texuna also sponsor Analysts on Masters degrees, encompassing Agile. Through work with a university, Texuna engage in Design Science Research on Agile practices and user engagement. In short, Texuna are very strong believers in an Agile mindset and "Sufficient Up Front Design", applying these principles in requirements elicitation and analysis on numerous projects. Tools such as Zoom, Slack, Pivotal, Jira and Azure DevOps support an Agile approach to backlog grooming, sprint planning and prioritisation. Daily standups manage blockers, with sprint reviews and retrospectives continually appraising progress and understandings.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Extensive experience of development of processes and business solutions, redesigning processes across multiple departments and functional teams to support effective operation and business change.	Texuna's work within the education sector has led to extensive experience process redesign, solution delivery and change to deliver benefits. Analysis and solutions delivered with the NCTL and OfS has led to change management to redesign processes for both data collection, working with HESA to introduce new collection methods, and dissemination with dramatically reduced timelines. Work with the DfE on GIAS has also seen striking process changes and effective rolled out. For instance, the introduction of various new establishment types over the years, or the new Schools Governors collection and management, which effectvlively engaged thousands of establishments to delivery new processes.	101	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Proven success at establishing and developing high standards of business analysis artefacts e.g. BPMN Process Maps, Use Cases, Data Models etc.	Texuna's recent BA discovery project with DfE's Data Directorate elicited, analysed and documented needs for six legacy systems and processes. Each business system comprised of various data and user needs. Needs were elicited through interviews, workshops, shadowing and systems analysis before requirements filtering, validation and documentation. Documentation included requirments logs, pictorial/textual use cases, conceptual data models and BPMN Process Maps. An 'As-Is' consensus model of the business systems provided input for proposed 'To-Be' options for presentation and review. Furthermore, physical data model analysis determine several additional optimizations. The outcome was an Alpha-phase consolidating and simplifying the complex estate and processes.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Extensive expertise of early project scoping, developing roadmaps and translating these into high-level themes, epics and user stories, maintaining the product backlog using appropriate tools, ensuring it is prioritised.	Texuna have delivered full lifecycle projects starting at discovery, with Agile planning across and within phases. Through requirements elicitation, analysis (including strategy) and documentation, Epics with T-shirt sizes and RICE prioritisation are created. High-level planning and prioritisation can then be led by informed Product Managers. This sufficient up from design allows Backlog grooming to focus correctly, with team Sprint Planning/Commitment using Data and User Stories for granular planning and delivery. In addition to prior DfE projects, Texuna's Oxford Brookes University project started lean, focused on hypotheses ideated and Epics in Discovery, testing these in Alpha, before delivering prioritised needs through Sprinting.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Ability to think creatively and articulate innovative ideas to solving complex business problems.	Texuna Analysts are trained in design thinking methodologies. Company working practices focus on the visual sensemaking to close communication gaps and innovate fully understood solutions across an enterprise. Texuna's Jisc's data warehouse/governance and BI project investigated COTS, cloud services and open source libraries integrating software and microservices to create innovative high performance, scalable and functional services. Recent work with OfS has also addressed data dissemination, using innovative API-based services allowing providers to access and view data through their own BI tools. Analysts reviewed open-source libraries for robust and flexible protocols that met needs whilst avoiding any particular propriately BI tool.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Proven ability to work collaboratively at pace within a high profile pressurised delivery environment.	Texuna's staff have years of prototyping experience with public sector bodies and B2C startups. Ofsted's Fostering Data Collection private and public Beta completed within 120 days, moving paper ideas to production-ready code through sprint show-and-tells with effective communication between analysts, developers, users and stakeholders. Balsamiq/Axure/InvisionApp were used to transform wireframe alternatives into realistic delivery designs. Through working with startups Indeemo (video), Checkmate (mobile), Edukit and Alison.com (web technologies) Texuna's staff working practices are established in prototyping, continuous integration and same-day code deployment based on user feedback. A capability also exists in scaling-up user research and research panels, better informing UI/UX delivery.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	The successful candidate will have extensive knowledge/experience of designing solutions compliant with GDS service standards.	Texuna staff have successfully delivered discovery/alpha/beta projects to the GDS standards. Texuna's work with Ofsted from discovery to successful live in a short time period demonstrates staff competencies. Texuna staff's work with DfE on GIAS project is another good example of this. The project has been run to GDS service standards successfully, passing several reviews, external penetration testing, risk and security assessments. Texuna will allocate staff who have worked on these, and other DfE projects, for the DfE Technology Directorate Business Analysis digital transfromation partner roles.	84	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Hold one of the following professional Business Analysis qualifications: IIBA Level 3 – CBAP; BCS Advanced Diploma in Business Analysis; BCS International Diploma in Business Analysis.	Texuna takes pride in the development of staff skills and career progression. This includes sponsoring several staff on higher education courses. All Texuna Analysts tailor their own personal development plans, with input from senior analysts and line managers. Within the last year, several analysts have gone down the BCS SIFAPlus level 4 International Diploma in Business Analysis route. This includes successful BCS qualifications in Business Analysis Foundation, Business Analysis Practice Practitioner and Requirements Engineering practitioner (the later two qualifications based on v4 2018 syllabus). These analysts are expecting to complete the single outstanding BCS course and oral examination within 2019.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Have demonstrable experience of providing BA services responsible for benefits identification and management.	Texuna Analysts understand that benefits identification, realisation and change management is essential within projects. Techniques such as breakdowns of Epics by business benefits place an early focus on identification, with Benefit Dependency Networks employed to facilitate change and help ensure realisation. Texuna Analyst's recent project work with the DfE data directorate analysed existing business systems and identifying new options. Workshops and 'Show and Tells' were carried out to communicate, confirm and document benefits. An overall report was compiled highlighting the full-breadth of the project benefits, ensuring the subsequent Alpha and expected Betas/Live keeps the service targeting benefits needed.	97	Not shortlisted	Not provided	

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DfE	Technology Directorate - Business Analysis digital transformation partner	Have demonstrable experience of providing BA services responsible for information and data modelling.	Texuna analysts have helped delivered innovate solutions on various data projects. Standard analysis methods applied include User-Centric Design, UML, Data-Driven Design, Business Event Analytical Modelling (BEAM*), Report catalogues and Kimball dimensional modelling/BUS Matrix. Texuna worked with Jisc across 3 independent business units and dozens of legacy systems; BAs conducted a 4-month discovery phase analysing sources, governance, data ownership and future directions. 'Design-thinking' workshop techniques broke down barriers, improve communication, and generate collaboration across Jisc on consensus data models. These led to conformed data models delivering 120 data flows and 50+ datamarts through year-long agile sprints.	94	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Knowledge, experience and/or qualifications in business or enterprise architecture e.g. TOGAF, BIZBOK etc.	Texuna has 15+ years experience delivering public sector enterprise architecture. The NCTL ITTDMS began as a single data collection and through effective design seamlessly grew to 10 collections over a decade. Cloud queue and scalable serverless architecture have recently been delivered to Ofsted and Edukit for fostering and school data collection. Texuna's Department of Finance (Ireland) project recently delivered a containerised architecture to scale for processing 100TB+ unstructured data. Lastly, the DfE Secure Access SSO clusterisation architecture, with automatic scaling and redundancy delivered proven high-availability and high-performance. These examples highlight Texuna's wide knowledge and expertise in business and enterprise architecture.	100	Not shortlisted	Not provided	
DfE	Technology Directorate - Business Analysis digital transformation partner	Prior experience of working in a government setting.	Texuna has a very strong 15+ year track record of successful high-profile business critical project delivery, encompassing Discovery, Alpha, Beta, Live and ongoing service management (several fully managed, including public 1st line support). To name a few: * Identity and authentication management for DfE (all school users) (the SA project completed Dec 2018), and National Registry of educational providers (GIAS), * The OfS's high-profile data publication, the National Student Survey, * Ofsted's highly sensitive fostering data project, * The Standards and Testing Agency Item Bank for national SAT exam development These projects were on-budget, to-time, passing gateway and GDS reviews deeming them fit-for-purpose.	100	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of delivering complex data services.	Texuna have a strong track record of complex data projects in the education sector. For instance, the DfE's national register of education providers (GIAS), Jisc's enterprise data warehouse and the NCTL Initial Teacher Training Data Management Solution(ITTDMS) to name a few. The ITTDMS project annually collects, validates and transforms student, employment and inspection from numerous data feeds in a wide variety of formats and from disparate sources. 200,000 students, each with 250+ data fields are acquired and validated to produce the Profiles dataset. The DfE's Get-Information-About-Schools highlights complex data governance and dissemination, with ~50 differing roles, and ~60 systems integrated.	100	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of developing and delivering complex technical data solutions including a demonstrable approach to solutions and data architecture.	Texuna believe in the value of conformance, automation and agile development in delivering data architecture and solutions. The Jisc's Data Warehouse Enterprise Bus Matrix conformed models and integrated datasets with an architecture using 22 source systems and 140+dataflows. Texuna worked with the Office for Students(OfS) delivering a best practice Repeatable Analytical Pipeline integrating, analysing and disseminating 10,000s quantitative and qualitative reports direct to providers. This all involves thoughtful data governance, data quality and master data and a willingness to redefine processes. Texuna uses standard ETL tools and bespoke development to deliver the most effective solution based on real customer needs.	100	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of providing data capability at scale to collect/store large scale data sets from a wide range of organisations with varying input quality (90 AOs sending 25 million records)	Texuna has 18-years experience deploying innovative large scale automated data collection and management solutions in the education space. The NCTL ITTDMS solution is a strong example of change and expansion. This solution grew from a single collection to 20+ disparate datasets from 10+ annual data collections over several years. The Texuna Oxford Brookes University data warehouse takes ~20 sources including big data and IOT for data mining and learning analytics. Outside of the education sector, Texuna have worked with large insurers whose operational systems feed Texuna's data warehouse with over 50TB of source data for reporting.	96	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of being able to provide data capability at scale to prepare, link, and match large datasets to tight timescales with a high level of accuracy.	Texuna have years of experience of working with data flows and warehouses across a diverse range of educational datasets and sector partners. This includes knowhow and solutions to deliver Repeatable Analytical Pipelines that automate the acquisition, integration, analysis and disseminating of data in a quality assured manner. Our project at Jisc implemented EDW from Discovery to Live using Agile with agreed 90-day delivery timeboxes. Jisc Enterprise Data Warehouse(EDW) takes data from over 100 dataflows, matches and merges data in real-time in a cloud hosted EDW stored in AWS with 3-5 million customer and usage records merged and matched per day.	100	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of being able to provide data capability at scale to process data to create additional business indicators to support reporting and analysis undertaken by the Department.	Texuna has built a complex reporting tool for OfS for the National Student Survey. This allows users to access and report on qualitative and quantitative data. Pre-packaged reports are standardised to allow downloads as single-click queries, while a real-time ad-hoc query service allows bespoke reporting across 50+ attributes. These tools are optimised to process records rapidly, and handle loads during peak times with over 1000+ daily requests, whilst ensuring the anonymity of individual students. Texuna's bespoke tools are well received within the sector based on feedback conducted each year, with ideas for improvement revisited through the use of user workshops.	100	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of producing high quality, robust and assured datasets.	Texuna have 18 years history working almost exclusively on high-profile educational and healthcare datasets. At Public Health England we delivered longitudinal epidemiology patient record database containing 50+-year-old radiology datasets for research and policy. We have managed the DfE's register of schools (GIAS) since 2008, the source of truth of information on establishments for the DfE. Texuna also provide a fully managed service to the Office for Students(OfS) for the analysis and publication of the extremely high profile National Student Survey. During this partnership, Texuna's have supported the OfS in becoming a Official Producer of UK Statistics through the NSS's publication.	100	Not shortlisted	Not provided	

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DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of building/running a secure service where c20,000 users can authenticate, validate and feedback on the data we hold on their establishments and people to improve quality/accuracy of data.	Security and privacy-by-design is fundamental to our approach so that sensitive data is fully protected. Texuna developed the DfE Secure Access IAMS solution, which provided single sign-on access to 11 systems for the educational sector. This application supported 150,000+ user accounts with peaks of 300,000 logins per week at busy periods. The IAM service facilitated the secure creation and management of credentials, provisioning users and attributes to the systems, as well as controlling and protecting personal data centrally to streamline GDPR processes and to limit personal information access. The service passed all audits and RMADs assessments including 3rd party penetration tests.	104	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Ability to run service desk teams, who understand education terminology and are able to work with local authorities, schools etc, and can be scaled up for peak seasons	We provide technical support and service for all our clients according to ITIL and ISO 20001 service management best practices. Much of this work has been in the education sector. The Office for Students NSS project includes a dedicated service desk providing phone and email support for HE and FE providers. Texuna's ITTDMS project represents a fully managed project which includes first line support for all data collections with HE, FE and Schools. Lastly, for 5+ years, until moved inhouse, Texuna provided a full service desk for the DfE's register of schools (GIAS) fulfilling ~13K school service requests annually.	99	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Ability to process data according to specifications developed collaboratively between the supplier and the customer's analysts to create the full range of data outputs including complex layered derived variables	A 12-month discovery and implementation project at Oxford Brookes University delivered through specifications that orchestrated dataflows from ~20 sources including SRS, VLE, CRM, access logs, Finance, HR, statutory returns and other sources. Data flows are supported by a governance framework and deliver 15+ subject specific data marts. This includes 5 data marts specifically for the purpose of learning analytics along with KPIs and predictive analytics using data mining and big data. The Texuna Jisc EDW involved collaboration with over 100 stakeholders, suppliers and partners delivering 50 style star schema marts, 100s of metrics, visualisations and reports including financial reports.	99	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Proven experience of working with government Departments.	Texuna have a deep understanding and practical experience of government needs. We have an excellent reputation for successful delivery in government. Texuna has recently worked with the DfE's Data Directorate to review six legacy source system leading into an Alpha phase. GIAS is another key Texuna project with the DfE that has demonstrated our effective partnerships and working with government departments. This is in addition to the DfE Secure Access SSO solution, and work with the Office of Students, NCTL, STA and Ofsted to name a few in the education sector.	93	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of building services that meet government security standards and hold ISO27001 certification.	Texuna are certified to ISO-27001 company-wide by our external auditors BSI (since 2009) and hold Cyber Essentials with IASME. Services are commonly submitted for Government security audits and RMADs assessments, including third-party penetration testing. Texuna developers follow OWASP best practices and all solutions are internally penetration tested. Standard procedures also include security risks management at both project and organisation level. Any security incidents that may arise follow ISMS procedures including root-cause analysis for swift resolution and minimising re-occurrence. High-profile projects delivered that comply with government standards include: DfE's GIAS, STA's ItemBank and Ofsted's Fostering Data Collection service.	99	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of implementing and ensuring data governance	Texuna specialise in data management solutions and have strong expertise in implementing data governance. This experience ranges from sector-wide compliance style models, for instance the DfE's master registry of schools' data (GIAS), through to trust orientated governance on enterprise Data Warehousing. Governance is critical for data management, further to operational needs, it promotes collaboration to assures data quality also safeguarding against risks including legal and ethical. Governance frameworks must be structured and pragmatic, built on shared understanding of principles aligned to business needs. Governance is a team sport that must be imbedded across the business, motivating with an opportunity-oriented focus.	100	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of communicating between technical and non-technical teams across digital, data and policy teams.	Having delivered full data projects in the education sector Texuna analysts understand how to effectively communicate between technical and non-technical teams. This includes how presenting complex findings to reach fully agreed consensus models and plans. Workshops, Epics in Agile nomenclature, breakdowns by business benefits and RICE prioritisation are extremely valuable communication tools to facilitate discussions. Texuna use a visual thinking approach that helps teams describe their data utilisation, insight and needs. Tools such as Customer Journey Maps, Information Supply Chain models (ICS), Conceptual Data Models and Data Values Maps are particularly valuable in understanding and unlocking business value held in dataflows.	100	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of ensuring high quality data through robust data cleaning and quality assurance of data products.	Our strong expertise in data matching and cleansing provides solutions which increase data quality with full audit and traceability. The Texuna Jisc Enterprise Data Warehouse processes 4 million transactions a day. Extract, transform, load (ETL) and enterprise service bus (ESB) tools and SQL stored procedures and functions are part of data cleansing and integration across more than 100 data source systems to create the master data tables. Our NCTL project supported complex data cleansing algorithms, data matching and uses stringent record validation to ensure data quality is kept high working with schools and HE providers.	98	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of continual service improvement and supporting customers to build their knowledge of the service in order to drive efficiency through identifying duplication across siloed work areas.	Texuna take great pride in the innovation and business benefits continually delivered to customers. 15 years ago, Texuna integrated disparate dataflows to deliver novel sector-wide processes for funding, performance tables and ministerial questions. Today Texuna offer cloud-first dev-ops containerisation, Data Mining, Machine Learning and AI as-a-service to central government. This highlights how Texuna have continually innovated new data services delivering greater business benefits through modern technology and understanding needs. Texuna's most recent work with the DfE was actually the review of legacy source system and processes determining duplication and similar data, making recommendation to consolidate.	95	Not shortlisted	Not provided	

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DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Familiarity with the Department's or education data landscape and the recent history of policy changes such as the evolution of value-added measures	Texuna track record is of successful education sector data projects, partnering with the DfE since 2008. Texuna understand the education data landscape and have assisted with policy changes throughout the DfE partnerships. The following highlight the breadth of expertise in education data: *DfE - Get Information About Schools (2008) - register of educational establishments *STA - Itembank (2012) - manage SATS exam papers *Office for Students (2013) - National Students Survey Dissemination Site *JISC (2015) and OBU (2018) - Enterprise Data Warehouse solutions *Edukit - SIMS data collection and wellbeing survey cloud infrastructure for UK primary and secondary school pupils.	102	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of working directly with schools, multi-academy trusts local authorities and/or awarding organisations	Texuna conducted a discovery phase with DfE's Data Directorate undertaking a review of six legacy systems that impacted schools, multi-academy trusts, and local authorities. User research was conducted with business analysis to understand each stakeholder, how data was supplied and how the users interacted with it. This led to a an alpha phase with the direct impact to 30k schools and over 150+ local authorities. In addition, Texuna works with the DfE on GIAS, working directly with DfE users as well as end-users as needed (including LA, MAT and establishment users).	93	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Experience of working with key stakeholders using compatible technology (Microsoft)	Texuna have long standing relationships with the Public Sector where Microsoft tools are preferred. As part of our work on GIAS with the DfE, Texuna work and have experience with Azure DevOps along with project management tool to facilitate workflow. The GIAS application is hosted on Microsoft Azure, using continuous integration and continuous deployment to cloud to automatically manage operations with other suppliers. Texuna staff have also engaged in a wide range of Microsoft tools when working directly onsite with the DfE.	84	Not shortlisted	Not provided	
DfE	National Pupil Data Achievement and Attainment Tables (NPDAAT) Service	Willing to operate from an office space in the London area	Texuna has a long track record of working in partnership with our clients to ensure that together, co-locating to customer sites as needs dictate. As part of a recent DfE project, Texuna's BA was co-located in the DfE's Darlington office, with travel to other sites as needed. As part of our work for Jisc, Texuna provided a team working onsite in Bristol for a year. Recently staff have also been co-located at Oxford Brookes University. Texuna has a London presence and can facilitate a team in the DfE's London Office or can welcome the DfE to Texuna's office.	99	Not shortlisted	Not provided	
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years have experience in development and delivery of digial products/services to GDS standards within Public Sector	Texuna have a strong track record of successful project delivery to the public sector. Texuna follow the 18 GDS delivery principles, coding in the open, onsite as an extended team. Texuna's work with Ofsted (2017-18) from discovery to successful live in a short time period demonstrates staff competencies. Ofsted web-application was designed and implemented using the styles, patterns and components from the GOV.UK design system. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. Fostering Data Collection service became subject to GDS approval.	96	Not shortlisted	Not provided	Not a clear view on development to design. Nor is it entirely clear how GDS approval gained (simply that the service was subject to GDS)
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years have experience in Business Analysis services	Texuna's Business Analysts focus on eliciting, analysing and engineering descriptions of needs from pre-existing artefacts from top-down user research. Users are engaged directly with visual techniques in workshops and interviews. Most recently, Texuna Business Analysts have been colocated with the DfE in 2019 as part of a discovery phase to analyse the requirements and needs of legacy systems. Texuna conducted 3-month discovery phase to analyse source systems and user needs, looking at requirements through an AS-IS and mapping to a To-Be state. A feasibility study report was provided with relevant recommendations for Alpha based on the directive and policy advised.	100	Not shortlisted	was changed and not submitted	
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years have demonstrable experience in User Centred Design Services (User Research, Content Design and Interaction Design)	Texuna has worked with many public sector clients to create user centred design, using GDS standards and best practices with design thinking and customer journey mapping. We get close to end users and build empathy to appreciate their intention and interface interaction. Real world users to ensure we empathise with them and understand the requirements from 'their shoes', creating a design that is centred on their needs and journey objectives. The Texuna Ofsted project used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping.	96	Not shortlisted	Not provided	Example wasn't entirely clear. Lots on what Texuna do, less on how they approached user-centred design in this example, which would have benefitted
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Evidence of demonstrable experience within the last two years in working complex, multi-stakeholder programmes	With our work with the OfS since 2014, Texuna supply and continuously iterate on the National Students Survey Results Portal, impacting HE's, FE's and AP's with over 2,500+ touchpoints. The Portal consists of a custom tools for creation of bespoke reports across NSS datasets, with static reports created by Texuna. The service is highly valued, highligted through feedback supplied. In 2019 with the DfE, the analysis of the Data Directorates Legacy Systems was conducted. A full audit was conducted carefully considering design for 23,000 schools and 153 local authorities. This allowed for business decisions to be aligned with departmental strategic goals.	100	Not shortlisted	Not provided	Not 100% clear on what complexity was - though clearly significant scale of audit
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Detailed knowledge of research methodologies and user centred design	A mix of information architecture and design thinking approaches are used with users, highlighting their points of interaction with service and map the journey for each persona. Multi-stage user research empathises with real people and understands their goals. Testing evaluates how different personas respond to design and workflow, with hypotheses, assumptions and decisions tested through real-world prototype engagements and reviews after sprints. As needed, additionally observation engagement is carried out through Indeemo (qualitative research app) to truly understand UI/UX in the context of typical usage and AdHoc Global assist with writing styles inverted pyramid approach to creating content.	98	Not shortlisted	was changed and not submitted	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years have experience in delivery management and project support services such as agile, scrum	Texuna delivery all projects using an Agile mindset and Scrum methodologies. The Texuna and DfE Get Information About Schools (GIAS) is a strong example of actively delivering using this aproach. GDS standards and Service Manual are followed, with collaboration using the DfE toolset of Zoom, Slack and Azure DevOps to manage Sprint planning, prioritisation, backlog grooming and team communications. Daily standups, Sprint reviews and lessons-learned Retrospectives ensure scope is managed, users are continually appraised and can provide feedback. Texuna has delivered GIAS sprints from start to finish with DfE using Agile Scrum/Kanban DevOps methodologies over a period of years.	98	Not shortlisted	was changed and not submitted	
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years have demonstable experience in working in multi-team agile delivery programmes	Texuna deploys multi-disciplined teams and comfortably works with mixed client teams. Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. This AGILE methodology runs numerous projects. Texuna has delivered numerous GIAS sprints with the DfE using agile methodology co-ordinating with other suppliers and DfE teams. Texuna participates fully via face-to-face meetings or tools such as Zoom, Slack and Azure DevOps to manage Sprint planning, backlog grooming and prioritisation and team communications. Daily standups manage issues with bi-weekly sprint reviews and retrospectives ensuring managed scope and continual users appraise and feedback.	99	Not shortlisted	was changed and not submitted	
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Proven experience of using a range of agile and lean practices, tools and techniques, working in multi-team agile programmes	Texuna agilie methods include: Design thinking and Lean methods to ensure Discovery and subsequent phases are user-led and evidence-based, with feedback to inform User Journey mapping and User Stories. We use formal scrum with daily standups, bi-weekly sprint planning with show/tell demos and retrospectives, formalising key multi-disciplined roles to structure projects and responsibilities. We use visual boards and Kanban continuous improvement with DevOps. The most pertentaint example of multi-team agile programmes is the Texuna DfE GIAS project, working with DfE teams, other suppliers (Olive Jar) and DfE DevOps delivering continual improvements to the service over 2+ years of collaborative Sprints.	100	Not shortlisted	Not provided	Fair example with demo of range of tools and techniques being applied
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Strong verbal, written and visual communication skills with the ability to proactively manage stakeholders and tailor to the needs of audience by collaborating on decisions	Texuna staff are excellent communicators from a long history of strong stakeholder collaboration and focus on empathy-building. Our partnership approach engages with all levels of the business through people-focused workshops, user research, surveys and written communications. Our analysts test assumptions with low fidelity people-based journey maps, create user stories, prioritising them into backlogs with stakeholders. We use a "show-not-tell philosophy", and constantly engage real users with sprint reviews and developer retrospectives. We use visual communication to ensure results are well understood by senior leaders and everyday users. Texuna also partner with Adhoc Global for IA, UXD and additional content expertise.	100	Not shortlisted	Not provided	Fair example that satisfies requirement. Would benefit from more on influencing to strengthen example
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Experience of being able to challenge and influence decisions	Texuna work in transparent partnership with our clients. Texuna staff are excellent communicators placing collaboration and empathy-building as priorities. Thoughtful stakeholder analysis and management strategies promote a partnership approach and change management engaging all levels of the business understanding and influencing. Texuna drive pragmatic decision-making by presenting visualised evidence of priorities, complexities and tradeoffs. A strong example of this is the Texuna Jisc Enterprise Data Warehouse which involved several Jisc business units, their senior leaders and 100+ stakeholders. We delivered on organisation-wide opportunities motivating each business unit towards new business processes whilst respecting and leveraging what was already available.	99	Not shortlisted	was changed and not submitted	
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years experience in architecture services and ensuring new and updated platforms, products, transactions and system architectures are robust, scalable, open and secure	Texuna works with customers to ensure solutions are robust, scalable, easy-to-maintain and offer value-for-money. We are vendor agnostic so that our solutions avoid vendor lock-in limitations. The DfE GIAS is a strong example, porting from local hardware to AWS and to the DfE Azure hosting without in the last 2 years. Additionally, GIAS was quickly re-engineered from a dedicated java application to an API service supporting a Single Page App. Microservices with REST API endpoints using YAML to automate language-independent code generation with Swagger test stubs. Texuna DfE services are proven as easy-to-use, robust, scalable and portable adopting GDS standards.	100	Not shortlisted	Not provided	Good example that sufficiently addresses requirement
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years experience in scalable server-side cloud-based web applications (preferably Microsoft Azure) detailed knowledge of the C#,.NET,ASP. NET MVC programming languages	Our team includes many full-stack devs with skills in all cited technologies. Our web applications are hosted both on AWS and Azure. For example, we work with the DfE to host GIAS on Microsoft Azure, using continuous integration and continuous deployment to cloud to automatically manage operations with other suppliers. We use cloud tools to implementation robust engineering designs for enterprise-level solutions, giving growth flexibility and scale. Texuna has established expertise in .Net Framework including experienced C# developers that work across multiple technology stacks, including relational and NoSQL databases, as well as Redis caching technology on Azure.	97	Not shortlisted	Not provided	Good example that sufficiently addresses requirement
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years experience in building front-end web applications (HTML/CSS/JS	Texuna uses open-source and open-standards, adopting the GDS front-end toolkit libraries to build prototypes and deliver working SPAs based on JavaScript/HTML5/CSS3 and RestAPIs. Our Tweakaboo, Indeemo, EduKit startups are all mobile ready responsive applications working on any web browser or mobile device. Apps use HTML5 and javascript controls to provide interactive content. Server-side rendering all work with CSS so that we can easily update and reflect branding changes when needed, and all our public sector projects meet GDS standards. Our work with several startups keep us up-to-date with the latest technologies, helping us migrate to best practices to government projects.	100	Not shortlisted	Not provided	Lacks detail on example provided that could fully demo requirement
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Within the last two years experience of end-to-end design, development and delivery of multi-strand digital programmes in the Education sector, within the public sector	Texuna first delivered the EduBase project in 2008, in 2017 this was re-designed as GIAS. We develop and test back-end services for GIAS and expose API to Single Page App frontend according to GDS standards and Service Manual. We work in partnership with the DfE and partner company to provide data in a user-friendly manner. The system has a focus on self-service for users, meaning DfE have been able to reduce their service desk resources needed to support the application. The system has increased the overall quality and trust in the data being held on the system.	97	Not shortlisted	Not provided	Nice-to-have

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Experience of passing GDS service assessments	Texuna have integrated services and built solutions following GDS standards and guidelines to the required level of usability and accessibility for many DfE projects in recent years. Texuna's DfE GIAS work has successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. It has been re-engineered with RestAPIs currently waiting GDS Live assessment. Similarly Texuna successful passed review to operate cloud portable Secure Access for many years on Eduserv and subsequently on AWS. We also delivered Ofsted Fostering Data Collection in 2017-2018 using the agile methodology subject to the GDS Alpha Service Standard.	97	Not shortlisted	Not provided	Nice-to-have
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Experience of Microsoft product suite in the education sector	Texuna have long standing relationships with the Public Sector where Microsoft technology are preferred, this includes the Microsoft product suite in the education sector. Texuna has migrated legacy solutions from hosted environments to cloud including services provided by Azure clouds. E.g the DfE GIAS in-house solution initially on SQLServer is now Azure Cloud hosted. We work with proprietary SaaS data feeds such as Dynamics 365 and Salesforce, as well as bespoke integration. We achieve this using open source tools (ETL and ESB). Solutions also regularly connect to Office365 and MsAccess as RDBMS sources with ETL connectors.	95	Not shortlisted	was changed and not submitted	
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Experience in delivering public sector products/services	Texuna have a strong 15+ year track record of successful delivery to the public sector, particularly the DfE and education sector. From Texuna's first service the NCTL Initial-Teacher-Training-Data-Management-Solution (ITTDMS) in 2004, to this year's Oxford Brookes University Enterprise Data Warehouse, Texuna have constantly partnered and delivered with public bodies in the Education sector. Other relevant partnership include: *National-Student-Survey (NSS) results dissemination for the Office for Studnets *Get-Information-About-Schools (GIAS) and Secure Access SSO for DfE *Itembank curriculum management solution for Standards and Testing Agency *Edukit - SIMS data collection and wellbeing survey for UK school pupils * and Data Warehouses for Jisc and several UK universities	99	Not shortlisted	was changed and not submitted	
Education and Skills Funding Agency (DfE)	T Level Service agile development BA, user-centred design delivery management services	Understanding of DevOps services including running production applications and optimising existing applications	Texuna specialise in DevOps and pipelines, architecting and engineering full-stack enterprise solutions. Texuna operate substantial cloud-based DevOps infrastructure with Enterprise data warehouses, reproducible analytical pipelines and Hadoop-based big data. As part of our work on GIAS with the DfE, Texuna work and have experience with DfE Azure DevOps along with project tools to facilitate workflow. GIAS is hosted on Azure with recent updates for clusterisation increasing responsiveness and reliability. This Texuna led work has been designed in collobration with the DfE, and has been submitted and passed to DfE and external IT Health Checks.	93	Not shortlisted	Not provided	Nice-to-have
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Have understanding of market failure and experience of developing solutions to correct market failure/intervene to alter the way a market functions.	Texuna understand that market failure is the inefficient distribution of goods and services in the free market. Texuna demonstrates this with the OfS NSS Results Portal which changes annually based on the needs of the Sector. To manage this, Texuna: * Manages and controls the design, development, configuration, implementation, testing and acceptance of the project. * Test using automated and manual tools at several levels prior to any release. * Load test to specified thresholds with reasonable redundancy. Texuna ensure all of these steps are at the forefront of any solution to ensure market failure is mitigated to a reasonable degree.	100	Not shortlisted	1 point (3 max)	Supplier could have provided more evidence around developing solutions to correct market failure.
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Experience developing a commercial product, including having an understanding of supplier and customer on-boarding.	Texuna built the DfE's single sign-on application Secure Access, which involved the onboarding of 11 systems for use by an overall customer base of over 80,000 users. We facilitated the self-service of account creation and management and worked closely with key suppliers to add their applications over time. We actively work with a small number of startup operations to track local community interaction (CheckMate neighborhood watch), or student wellbeing (school surveys with Edukit.org. uk). We are also the largest independent investor in and technical support partner of Alison.com which provides e-learning services paid certification and accreditation to millions of learners.	99	Not shortlisted	1 point (3 max)	Supplier could have provided more evidence of understanding of supplier and customer on-boarding.
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Work to GDS service standards.	Texuna implement the 18 Digital Service Standard principles. Texuna staff have successfully delivered discovery/alpha/beta projects to the GDS standards. Ofsted Fostering Data Collection is a strong example of leveraging GDS standards and guidelines successfully. GDS templates ensured the system's UI, look and feel, user journeys and architecture conformed to GDS allowing uncomplicated integration with other UK government systems. DfE's GIAS has taken a similar approach, with GDS reviews successfully for public beta roll-out. Formal feedback has been extremely positive, with the service is now delivering on new needs, leveraging principles and standards established, pushing to full live service.	97	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Use Agile methodologies.	Texuna delivery all projects using an Agile mindset and Scrum methodologies. The Texuna and DfE Get Information About Schools (GIAS) is a strong example of actively delivering using this aproach. GDS standards and Service Manual are followed, with collaboration using the DfE toolset of Zoom, Slack and Azure DevOps to manage Sprint planning, prioritisation, backlog grooming and team communications. Daily standups, Sprint reviews and lessons-learned Retrospectives ensure scope is managed, users are continually appraised and can provide feedback. Texuna has delivered numerous GIAS sprints from start to finish with the DfE using Agile Scrum/Kanban DevOps methodologies over a period of years.	100	Not shortlisted	2 points (3 max)	

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DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Have significant experience of rapid prototype iteration based on ongoing user research.	Texuna invest in and work with Edtech startups. These rely heavily on fast prototyping and continuous integration and deployment of code. Real users often give immediate feedback on UI/UX changes and customer journey, and we sometimes push commits live as often as several times a day for startups. Texuna use different tools suitable for Discovery and Alpha phases to speed up and structure our work into repeatable practices. These include Balsamiq/Pressie, InvisionApp, Axure, Indeemo and video composites. We use these to collect real evidence to inform multiple rapid UI/UX iterations before moving toward high fidelity coded prototypes.	97	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Have significant experience of conducting user research and usability-testing sessions (face-to-face and remote) based on a robust methodology.	Texuna delivered the CheckMate app in 2018. User research was done to test hypotheses and design iterations through a combination of workshops and sprint reviews with internal stakeholders and representative external end users. User researchers conducted interviews (face-to-face and remotely) to review refined journeys on and distributed video composites of visual mockups, Balsamiq wireframe prototypes and iterated prototype designs based on GDS frontend toolkit and design patterns. Usability feedback was collected through observation, audio and video capture. We used Indeemo and Axure tools to coordinate workshops and remote sessions and capture user behaviour and record feedback.	96	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Have experience of recruitment of user research participants (including users with accessibility and assisted digital needs).	We work with Indeemo.com to do qualitative research videos to scale user recruitment with user research and feedback collection on product design and user experience/usability. At OfS we work with Ipsos Mori, the H.E. sector and N.U.S. to recruit student and staff participants on an annual basis to participate in workshops to guide future service direction for National Student Survey dissemination. We iterate continuously with demonstrations to real users and solicit feedback, using specialist tools (e.g. U of Cambridge Inclusive Design Toolkit). Accessibility is tested with the GDS recommended WC3 AA level.	91	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Have experience of analysis of existing research, analytics and insight to ensure good understanding of users and their needs.	Texuna's Business Analysts and User Researchers focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. We also investigate historic audit trails (e.g. weblogs) for past usage behaviours to establish new hypothesis for testing. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements e.g. Jisc and University data warehouses. We also leverage retrospectives on projects like Ofsted and DfE GIAS to generalise lessons learned about what user experience, design and content really helps users to achieve their desired outcomes.	96	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Have experience of delivering high quality content and information architecture design for complex user journeys across multiple touchpoints, which meets user needs.	Texuna collects bottom-up evidence from search history, website analytics and legacy Information architecture(IA), and compares it to top-down collections from user research interviews and workshops. We use card sorting and Show-me Show-me exercises to get users to naturally articulate labels and groups into a taxonomy. We test proposed IA in wireframes and hifi iterations, using feedback to improve navigation, usability, content and design. We use mobile ethnography to capture authentic behaviour and feelings in a multi-media tracking diary. Action research is done as users follow a task workflow and researchers respond users' posts across multiple touchpoints in a journey.	99	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Have experience and capability of creating plans for Beta from both a design and technical perspective.	Texuna planned a 2 year project with Jisc incorporating Discovery, Alpha, multiple Beta phases and a Live handover. We created a conceptual visualisation of the entire project and outlined high level Capabilities and desired Outcomes for different user journeys as Epics. We used RICE/MoSCoW matrix with estimates for each Epic to clarify priorities with stakeholders. Outcomes were deliverable every 12 weeks. By the end of the Discovery we had created a backlog of the key User Stories - which would subsequently grow to 1,000+ delivered by Handover. After each phase, outcomes and estimates were reviewed and re-prioritised as necessary.	99	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Show evidence of digital creativity and innovation to tackle a difficult or complex problem.	Texuna Analysts are trained in design thinking methodologies. Company working practices focus on the visual sensemaking to close communication gaps and innovate fully understood solutions across an enterprise. Texuna's Jisc's data warehouse/governance and BI project investigated COTS, cloud services and open source libraries integrating software and microservices to create innovative high performance, scalable and functional services. Recent work with OfS has also addressed data dissemination, using innovative API-based services allowing providers to access and view data through their own BI tools. Analysts reviewed open-source libraries for robust and flexible protocols that met needs whilst avoiding any particular appropriately BI tool.	100	Not shortlisted	2 points (3 max)	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Show evidence in leading, coaching, mentoring and upskilling people in Agile techniques and roles to build agile capability within existing teams.	Texuna work collaboratively on an open book basis as an extension of the client team, building internal competence and capability. At Jisc we identified and allocated team roles with Texuna shadows, established shared agile terminology and delivered upskilling sessions based on the methodology, architecture and technologies implemented. Further upskilling with everyone was through daily standups, regular sprints, reviews and retrospectives. We work with the client's preferred project and collaboration tools to minimize friction and maximize knowledge transfer. We are very happy to share our lessons and gotchas with the team in an open dialogue and happily share suggestions and recommendations.	100	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Understanding of the education and schools landscapes.	Texuna track record is of successful education sector data projects, partnering with the DfE since 2008. Texuna understand the education data landscape and have assisted with policy changes throughout the DfE partnerships. The following highlight the breadth of expertise in education data: *DfE - Get-Information-About-Schools (since2008) - register of educational establishments *STA - Itembank (since2012) - manage SATS exam papers *Office for Students (since2013) - National Students Survey Dissemination Site *JISC (since2015) and OBU (since2018) - EDW solutions *Edukit - SIMS data collection and wellbeing survey for UK school pupils *ITTMDS(2003-2018) - Performance Profiles, NQT survey, HESA returns and DLHE data	100	Not shortlisted	Nice-to-have skills or experience	

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DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Experience in designing citizen-facing digital services.	Texuna solutions typically have multiple end-user types including internal and external users. The GIAS application is used by more than 20,000 logged in users across the educational sector, and also targets the general public. GIAS is the DfE's source of truth for establishment records, and is used across DfE websites when referring to establishment/school records for public consumption. For the NSS project, we have delivered a Dissemination and Consultation Portal. Used since 2014 to assess stakeholder needs, usage has seen a 10% growth annually, feeding into the overall design of the system.	91	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Experience in taking services successfully through the GDS Service Assessment.	Texuna have integrated services and built solutions following GDS standards and guidelines to the required level of usability and accessibility for many DfE projects in recent years. Texuna's DfE GIAS work has successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. It has been re-engineered with RestAPIs currently waiting GDS Live assessment. Similarly Texuna successful passed review to operate cloud portable Secure Access for many years on Eduserv and subsequently on AWS. We also delivered Ofsted Fostering Data Collection in 2017-2018 using the agile methodology subject to the GDS Alpha Service Standard.	97	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Experience of working in partnership with technical delivery teams.	Texuna engage and communicate effectively with stakeholders, business, public users across divisions. We work with IT staff to engineer scalable DevOps automation. The Jisc Enterprise Data Warehouse is an example. We conducted a source system audit to map the sources, locations, network details, infrastructure and platform stack and key stakeholders (sysadmins, license holders, business users etc.). We built a catalog of source systems and a data ownership framework, creating a RACI matrix and data supply contract template for the business to implement. Our experts focus on value for money, platform independence and project execution.	93	Not shortlisted	Nice-to-have skills or experience	
DfE	Service design to help schools buy catalogue goods (discovery & alpha)	Experience of using the gov.uk design system.	Texuna have used the open source code in the GOV.UK design system and front end toolkit libraries to deliver a number of projects. Ofsted Fostering Data Collection in 2017-2018 uses the GDS AngularJS front-end libraries. The service is W3C WCAG2.0 'AA' compliant and all technical documentation was created using the GDS documentation-as-a-code best practices. Texuna has provided the EduBase2 application since 2008, collaborating with GDS in 2017 to relaunch as GIAS. Texuna created the API interface to the GDS front end Single Page App, extensively leveraging GDS Styles and Frontend toolkit libraries (Angular components).	92	Not shortlisted	Nice-to-have skills or experience	
STA	digitally modifiable paper-based tests: discovery phase	Provide a multidisciplinary complete team able to work in an agile way to run a digital development through to completion.	Texuna have full-time multi-disciplinary staff to provide project and service continuity. This team has already delivered Jisc EDW project from start to finish using Agile Methodologies. Texuna used methodology focused on user needs. We used Scrum approach with bi-weekly Sprints, Reviews and feedback from users, together with daily standups. Discovery outcomes allocated implementation goals into 90-day time boxes. Data backlog was implemented in logical and prioritised order based on RICE Framework. The project main focus spanned a single-year with multiple rolling wave deliveries using an Agile methodology with collaborative sprints. The project was delivered within budget and within the contracted timeframe.	100	Not shortlisted	2 points (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Be able to mobilise a team within two weeks to work in Coventry.	Texuna has a long track record of flexibly resourcing projects, this includes redeploying and re-assigning resources as needs dictate. For example, the 2-year Jisc EDW project had similar short notice. Texuna provided a local team onsite (Bristol) of ~8 and a remote team of ~5 within 2 weeks of award. Texuna also accommodated to a second request at short notice for an independent team to further deliver a tactical project 1 month after work began. Texuna will assign a team to this project who follow Texuna's proven Agile and GDS aligned working methodologies, ready to work in Coventry within 2 weeks.	100	Not shortlisted	2 points (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Ability to work with third party teams working for the same overall service to the same customers.	Texuna were working with GDS team and 3rd party designers to integrate legacy schools database(GIAS) to GDS compliant Single-Page App that better meets user needs. Front-end UI - developed by OliveJar; back-end Database and API service - delivered by Texuna. Active partnership between 3 key parties was crucial for this project. Texuna participated in planning meetings with DfE and OliveJar, actively engaging with and advising on all elements of work to ensure continued success of GIAS project. GIAS has been well received and Texuna is continuing with new scope of work in 2019 as GIAS moves from Beta to Live.	99	Not shortlisted	2 points (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Provision of, or willingness to subcontract, subject matter expertise in relevant disciplines.	Texuna can combine a multi-disciplinary in-house pool of long term UK-based employees and experts together with 3rd party freelancing and contractor model to provide required expertise onsite and long term continuity. Texuna rigorously plan our resource deployment and engage in cross-training staff to both upskill staff and provide project contingency. Texuna has 18+ year track record flexibly resourcing projects. We have successfully managed cross-project demands for services and have a track record of meeting deadlines and commitments. We deliver to the education sector where our clients experience both busy periods and quiet times in the academic year.	96	Not shortlisted	1 point (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Experience of compliance with the government Technology Code of Practice.	At Ofsted, Texuna delivered online Fostering Data Collection in Q1-2018. Texuna's solution has been designed to conform to GDS Technology Code of Practice, standards and guidelines. Texuna has utilised GDS look and feel templates to ensure the Fostering Data Collection system will conform and integrate with other UK government and Ofsted sites and systems. GDS compliant architecture is hosted on AWS for cloud hosting, which ensures that the solution is both scalable to meet the collection's demands, while being cost-effective. The project has successfully passed several reviews, external penetration testing, risk and security assessments. Written feedback from Ofsted was very positive.	100	Not shortlisted	2 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
STA	digitally modifiable paper-based tests: discovery phase	Demonstrate experience of delivering services for UK government departments or public bodies.	Texuna have a strong track record of successful project delivery to the public sector and particularly to DfE and government agencies. Good example: 'SecureAccess' solution is the DfE's integrated IAM Solution. The solution deployed and integrated with a number of legacy DfE systems based on differing technology. Secure Access was initially commissioned to provide authentication and authorisation to 3 legacy systems which has subsequently been expanded to 10+ source systems. Other projects include: *GIAS and ITTDMS solutions for DfE *Itembenk for STA *National Student Survey for OfS All Texuna public sector implementations have passed gateway standards reviews and deemed fit-for-purpose.	100	Not shortlisted	2 points (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Demonstrate experience of managing and proactively engaging stakeholders and building relationships to support digital transformation.	Texuna build empathy through visual design-thinking workshops and wider managed communications with feedback channels. We engage colleagues across disciplines to drive transformation based on establishing a shared understanding of pains and opportunities, providing tools to help agree on quick wins and strategic priorities. Texuna worked collaboratively onsite with Jisc over 2 years to deliver greenfield EDW. All levels and roles were engaged. Project signoff points ensure staff are engaged in design and implementation. Texuna acts as extension of the client team helping to build internal competence and capability. We work with clients preferred tools to minimise friction and maximise knowledge transfer.	100	Not shortlisted	1 point (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Demonstrate experience of conducting and using user research to underpin key recommendations for complex services.	Texuna's history is in educational sector making recommendations to deliver business benefits through innovative digital services. Texuna's Business Analysts focus on eliciting, analysing and engineering descriptions of needs from pre-existing artefacts from top-down user research. Users are engaged directly with visual techniques in workshops and interviews. For OfS NSS we deliver advanced analysis capabilities to institutions for self-service analysis on Student experience and feedback. Solution is designed and optimised to meet exacting user needs. Service's recommendations to introduce repeatable analytical pipeline. This automated process reduced costs/timelines, whilst increasing quality. This in turn supported OfS becoming Official UK Publisher of Government Statistics.	100	Not shortlisted	1 point (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Demonstrate knowledge and experience of working in the schools sector.	Texuna work with data in schools and statutory educational sector for clients including: *Edukit - SIMS data collection and wellbeing survey cloud infrastructure for UK school pupils *GIAS - database of educational establishments *Itembank(STA) - solution for SATS exam papers management *ITTDMS - annual data collection for teacher training *SecureAccess - IAM for all schools and various stakeholders in UK, which also includes local authorities Texuna has carried out extensive user research with school stakeholders. For example for DfE(NCTL) Texuna engaging with teachers at schools in data returns and to deliver GTP applications for PGCEs before it migrated to UCAS.	100	Not shortlisted	2 points (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Demonstrate experience of designing and delivering an online service.	Texuna delivered online solution for STA - ItemBank - bank of assessment questions for primary SATS and foundation-stone for digital assessment services. Texuna successfully designed and delivered web-based metadata solution, which provides robust and secure question, item, stimulus, test and assessment data management. Texuna engaged and delivered STA's requirements to extremely tight timelines. ItemBank project has reduced development time and costs through improved validation and visibility. Greater visibility of materials, efficiencies in processes, reuse of material, and reduction in burdens have improved STA's return on investment. It has also allowed targeting of test development based on needs they can now identify.	101	Not shortlisted	2 points (3 max)	
STA	digitally modifiable paper-based tests: discovery phase	Demonstrate knowledge and experience of delivering services for users with SEN or VI requirements.	Texuna thinks about accessibility from the start and delivers digital services that as a minimum meets level AA of the Web Content Accessibility Guidelines 2.0 (WCAG 2.0) and work on the most common assistive technologies: screen readers or speech recognition software. Texuna has experience with ARIA features to improve accessibility where appropriate. We test digital services under various scenarios: CSS is turned off, functionality is keyboard accessible, non-text content has text alternatives, functionality is usable without JavaScript wherever possible. We use auditing tools and test with actual screenreaders like VoiceOver (VO) for Mac/iPhone/iPad and similar tools for Windows and Linux.	99	Not shortlisted	1 point (3 max)	
ONS	Matching System	Expert knowledge of data matching processes and algorithms (6 points)	Texuna run the ITTDMS since 2003. The platform manages 20+ disparate datasets across 10+ annual data collections, supporting 14 different user access portals. Data is matched according to weighting rules, for example, a match on an ID field may score highly compared to a match on name. Partially matched records can be either rejected or presented for manual checking and approval prior to loading so that data quality is maintained. Matching algorithms such as fuzzy-lookup and integrated R libraries (MATCH) facilitate this process. Our processes have led to the successful operation of the ITTDMS service for over 16 years.	99	Not shortlisted	Good response	
ONS	Matching System	Experience of storing/retrieving/displaying large volumes of multi-page images/scanned documents (PDFs) (3 points)	Texuna's crawler indexes PDF files, both native files and PDFs created from scanned documents. If PDF contains scanned pages as images, these images are passed to OCR and text is extracted and indexed. The solution delivers a comprehensive search and collaborative document/communications review, using specified keyword/phrase and custodian indexing, technology-assisted review and data preservation. For Dept of Finance (Ireland) we have integrated, parsed, and indexed data in JSON format from mbox/mailboxes/.pst archives, messaging services, phone data, pdf, images with OCR processing, etc. We designed for 100+ Terabytes of content as object storage on AWS-S3 and inhouse using Minio.	97	Not shortlisted	Good response	
ONS	Matching System	Evidence of working with large volumes of data (the Census is circa 60 million records) (4 points)	Texuna have 18+ years experience deploying innovative database management and large scale automated data collection solutions. Texuna worked collaboratively onsite with Jisc across 3 independent business units over 2 years to deliver an integrated Enterprise Data Warehouse. We created a conformed data model to identify and integrate new and existing data systems. Texuna developed a Kimball-style Enterprise Business Matrix to identify opportunities for conforming data models and integrating datasets. The data mart architecture collects data from 22 systems representing 140+ data streams. Now Jisc processes billions of data points to produce 250GB EDW of pre-processed historic data in columnar store.	100	Not shortlisted	Good response	

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ONS	Matching System	Experience with fuzzy-match based searching (4 points)	Texuna incorporate a high degree of fuzzy matching logic into its automated data reconciliation methods. Parameters are configured to make calculated search-assumptions. These are based on counting the number of degrees of difference in each word within a parallel record, and calculating the likelihood of a typing-error being the cause of inconsistency, over missing or invalid data. Texuna implemented fuzzy-match based searching algorithms for GTC/Skills test data reconciliation in NCTL ITTDMS. Data was obtained from external services in different formats. The algorithm calculates weights between GTC/skills records and database records during fuzzy-match based searching leading to effective matching.	98	Not shortlisted	Good response	
ONS	Matching System	Evidence of developing/configuring/optimising user interfaces for displaying data records (5 points)	Texuna has worked with tools such as Balsamiq, GetArbor, InvisionApp, Pressie etc. to construct quick wireframes and elicit feedback across stakeholders, providing evidence to inform UI/UX. For 2019, the NSS Results Portal solution updated the UI to optmise data displayed to ensure 'ease-of-use'. Responsiveness was improved by implementing standards such as HTML5 and CSS3 with a revised Bootstrap framework. UI changes included: user-forms, management pages, data-tables, enhanced system functionality, and re-designed D3 visualisations. Changes to the UI were managed through an interactive workshop-based approach with feedback iterated through wireframes. The updates were successfull with additional requirements being considered.	100	Not shortlisted	Good response	
ONS	Matching System	Experience of integrating simple case and workflow management (3 points)	Texuna are an integration and cloud specialists. We integrate Dynamics, Salesforce, SAP, Sage, SITS, SIMS, Unit4, Sharepoint, various CMS and storage systems via ETL and ESB. Recently, for Oxford Brookes University the EDW solution integrated VLE (Moodle) and SRS (Banner) systems. This facilitated analysis on learning analytics along with including data-sources with over 500k+ records. The systems integrated were analysed and incorporated within our metadata framework allowing for a full-trace audit from source to transformed records. The final outputs were stored on new datamarts developed with definitions of underlying data provisioned on the OBU internal wiki.	96	Not shortlisted	Poor response	
ONS	Matching System	Evidence of support for data capture as part of a user workflow (e.g. storing case notes against decisions) (3 points)	Texuna have extensive big data and ETL/ELT experience from our DWH projects. Our Jisc ETL solution efficiently integrated over 100 distinct data streams and data feeds comprising billions of records without performance impact on source systems. Sources included databases with and without API's configured together with flat files and email data. We worked with Hitachi for a major insurance company to pull up to 100TB out of operational Oracle systems for analysis on a Cloudera and Pentaho solution. Texuna have implemented Big Data projects importing data from sources, especially where Change Data Capture isn't available.	95	Not shortlisted	Poor response	
ONS	Matching System	Experience of systems able to scale to meet increases in concurrent usage (4 points)	Texuna delivered Secure Access (IAM) to DfE, which was initially commissioned to provide authentication and authorisation to 10+ source systems. The system supports for over million users and comfortable throughput of almost 100,000 logins per hour. Secure Access is designed around the concept of self-sufficient nodes that can be added to a cluster at short notice. This allows us to permit scaling up by increasing the number of (virtual) machines used in the installation. Each node is self-contained and cluster-aware, making it easy to deploy and launch, can be configured to launch either as an IAM, a database or both.	100	Not shortlisted	Good response	
ONS	Matching System	Evidence of working with both Welsh (or international) and English data and typefaces (4 points)	Texuna are experienced in working with international typefaces. The NSS Results Portal solution for the OfS is UK-wide and displays data from the NSS survey conducted for HE's FEC's and AP's. The data includes text-based comments from the survey which come in a variety of languages such as Welsh, Gaelic, and English. Texuna's processes are able to detect and successfully parse comments without any disruption to back-end services during import. Automated scripts are executed to detect odd typefaces along with policy checks to omit names to preserve anonymity. This has ensured successful imports of comments since 2014 from the project inception.	100	Not shortlisted	Good response	
ONS	Matching System	Experience of working with highly sensitive data and the associated assurance requirements (4 points)	Texuna align information security to our corporate strategy as a top priority. Texuna are registered with the Information Commissioner as a data controller and are certified under the ISO27001 standard by BSI across all office locations. BSI audit controls oversee data security and system integrity. Privacy-by-design is fundamental to our approach. All staff are trained and contractually bound to processes for security and GDPR compliance. Texuna's projects: *EPIDOS to securely capture, store and process sensitive medical records for Radiography Epidemiology at PHE *Highly sensitive Fostering Data Collection to Ofsted All Texuna public sector implementations passed gateway standard reviews and deemed fit-for-purpose.	100	Not shortlisted	Good response	
ONS	Matching System	Knowledge of the latest NCSC guidance and principles (2 points)	Texuna follow a formal secure development policy and development process that is audited and certified by BSI to ISO27001, ISO20000-1 and ISO9001. Texuna system design defaults to "nothing-accessible and everything-auditable". Project code and documentation are strictly controlled, developed code is validated against the most recent and approved coding standards (OWASP and Texuna Coding Standards). Texuna's Team create and run tests for code and system vulnerabilities prior to any major production release. This review and validation ensure that code exhibits fundamental secure properties to include correctness, predictability, and attack tolerance in adherence to ISO and NCSC standards.	97	Not shortlisted	Poor response	

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ONS	Matching System	Experience of public, private or hybrid cloud hosting architecture & solutions (5 points)	Texuna are an AWS certified development partner. We also host on Azure (i.e. with DfE). However, we keep solutions cloud independent and portable so they can be hosted on in-house infrastructure. Our technical staff ensure security of system architecture. Texuna deployments include: *Standard, external-facing Virtual Private Cloud (VPC) using Multi-Availability Zone architecture. *Separate Virtual Network subnets for public application tiers (bastion/management host) and private (back-end) tiers for Operational databases. Texuna built the Jisc EDW on public cloud. Required data classification and sophisticated obfuscation routines facilitated data movement between environments, with sensitive data encrypted. Enterprise and cloud networks were integrated delivering a heterogeneous platform.	100	Not shortlisted	Good response	
ONS	Matching System	Experience integrating solutions with other systems and architecture (4 points)	Our projects demonstrate a deep understanding of solutions integrations, both acquiring and disseminating data, identity solutions, as well as integrating legacy services. For instance, the DfE SA IDAM solution involved work with various DfE suppliers to integrate 11 different systems provided by various vendors using a range of technologies. Texuna integrated the DfE's GIAS with UK's address look-up (OS Places API) and real-time GIAS data are shared with various systems, based on Microsoft Azure Service Bus. Recently Texuna's cloud-based data warehouse for Jisc integrated 140+ datastreams to support cross-service reporting. All work demonstrates integration of disparate sources to ensure project success.	100	Not shortlisted	Good response	
ONS	Matching System	Evidence of applying the best practice principles of the Government Service Standard (4 points)	Texuna implement the 18 Digital Service Standard principles. Texuna have successfully delivered discovery/alpha/beta projects to the GDS standards. All Texuna user-facing deployments are at least WC3 AA level accessible and have been independently tested. DfE's GIAS is a strong example of leveraging GDS standards and guidelines successfully. GDS templates ensure the system's UI, look and feel, user journeys and architecture conformed to GDS allowing uncomplicated integration with other UK government systems. This work has successfully passed several GDS reviews, external penetration testing, risk and security assessments. Feedback is extremely positive, with the service now delivering new needs, leveraging principles and standards established.	100	Not shortlisted	Good response	
ONS	Matching System	Evidence of gathering user needs in accordance with the Government Service Standard (4 points)	Texuna's staff have years of prototyping experience with public sector bodies and B2C startups. Texuna combine GDS standards and best practices with design thinking and user journey mapping. Ofsted Fostering Data Collection is a strong example of leveraging GDS standards and guidelines successfully. Ofsted "Setting Goals" workshops engaged users with 'show-me don't tell-me' sessions to empathise with their methods and motivations, and test our assumptions. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. The project went live successfully within 120 days.	96	Not shortlisted	Good response	
ONS	Matching System	Evidence in user centred design (4 points)	We combine GDS standards and best practices with our design thinking and user journey mapping. Our design-thinking approach is a user-centred multi-stage problem-solving process that requires designers to empathise with and foresee how different user-groups respond to design. Designers test the validity of key design decisions and assumptions through real-world engagement and prototyping with actual users. E.g. For Ofsted we prototyped screens that were user-tested and changed prior to formal UAT. We interact with sample user groups to determine specific needs and issues. We match published GDS standards and best practices with design thinking and customer journey mapping.	98	Not shortlisted	Good response	
ONS	Matching System	Proven record of effectively using agile methods to design, build and deliver (4 points)	Texuna follow Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. Texuna have delivered over 20 GIAS sprints from start to finish using Agile Scrum/Kanban DevOps methodologies. Texuna's agile way adopts daily standups, bi-weekly sprints with show/tell retrospectives. We build user empathy and highlighted an effective user journey which was translated into a portfolio backlog of User Stories. We assured timely delivery in 2-week sprints. Sprint ceremonies included demonstration, backlog grooming and agile prioritisation. GIAS has been well received with new scope of work agreed as GIAS moves from Beta to Live.	100	Not shortlisted	Good response	
ONS	Matching System	Experience developing production-ready solutions incrementally (3 points)	Texuna start lean, building from low-fidelity paper prototypes and wireframes to high-fidelity video composites and interactive prototypes. We use behavior-driven development from the start to set early baselines for deployable code. For fostering data collection we completed a public Beta within 120 days, going from paper ideas to production-ready code through ongoing sprint show-and-tell with feedback between developers, users and stakeholders. We used Balsamiq and InvisionApp to transform wireframe alternatives into realistic UI designs for App development. Regression testing is done against code that are delivered to all environments. Jisc, University clients, Ofsted and DfE projects use this approach.	98	Not shortlisted	Good response	
ONS	Matching System	Experience running and supporting an operational system (5 points)	Texuna's NSS Results Portal has continued since 2014 and has grown to over 2000+ users. The system is hosted on the AWS public cloud and we provide full server monitoring, maintenance/backup services, and audit capability. A dedicated service desk addresses over 300+ queries during peak publication times with daily queries of approximately 20. Additional guidance documents and videos supplement support capabilities. The project undergoes yearly sector consultation to address upcoming changes in which users can provide feedback for consideration. The project has been met with great reception with continuous year-on-year growth and additional changes being considered for 2020.	98	Not shortlisted	Good response	

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ONS	Matching System	Experience of logging, auditing and monitoring of system and user activity in accordance with agreed metrics (4 points)	Texuna solutions incorporate Privacy by Design - based on 'nothing-accessible and everything auditable'. Security and audit strategies are centred around data and user access. This is configurable to be as light-touch or extensive as required. The NSS Portal solution for OfS incorporates a variety of logging and audit functions. This includes Zabbix monitoring alerts that are configured to alert during downtimes of the application, AWS Cloudwatch, user-based logging to track active/non-active users, downloads, and site usage. These all supplement the internal logs supplied through the application and are exposed to privileged 'back-office' users so that data integrity can be preserved.	100	Not shortlisted	Good response	
ONS	Matching System	Applying user research insights to product development (1 point)	Texuna use Design thinking and Lean methods to ensure Discovery and subsequent phases are user-led and evidence-based. We use feedback to inform User Journey mapping and User Stories; multi-stage user research to empathise with real people, understand their goals, test how different personas respond to workflow and design that is inclusive and accessible. For example on Ofsted we iterated prototype screens based on user testing to highlight specific needs and issues while also testing accessibility for digital inclusion. Wireframes were tested with stakeholders and users via Axure and Balsamiq, with iterative prototypes built on GDS libraries with Swagger-based YAML stubs.	99	Not shortlisted	Good response	
ONS	Matching System	Experience of system migration/install (e.g. to/from Cloud to private data centre) (2 points)	Texuna solutions are based on infrastructure-as-a-code to ensure cloud-agnostic, portable solutions. Texuna have migrated legacy solutions from hosted environments to the cloud and leveraged cloud services provided by AWS and Azure clouds. GIAS project was hosted originally as EduBase java application on dedicated in-house servers since 2008. It was moved to AWS cloud hosting in 2015. EduBase evolved to GIAS in 2017 and was migrated again to Azure hosting on the DfE standard environment.	73	Not shortlisted	Good response	
ONS	Matching System	Knowledge of Apache Hadoop based stacks (HDFS, Hue, Hive, Impala, Spark) (2 points)	Texuna ware brought in as a Hitachi Data Systems partner to deliver a fully operational 100TB big data solution for a major insurance company using the Data Vault2.0 approach. We delivered an operational solution within 120 days and delivered analytical reports demonstrating market segmentation of profitable and loss-making businesses. The solution used technologies such as: • Cloudera Hadoop 5.11 including Impala, Hive, Hue, Oozie, Sentry, YARN, and ZooKeeper services • Pentaho Data Integration ETL tool • Pentaho Business Analytics reporting platform • Tungsten Replicator change data capture application The project was completed on time and within budget.	97	Not shortlisted	Good response	
ONS	Matching System	Knowledge of Python and PySpark (1 points)	Texuna deliver in a number of programming languages, predominantly Java and Javascript. Python is used for BI and analytics use cases along with facilitating data transformations. We also use Pytest to build our automated ETL testing framework on top of the Allure platform. Texuna have experience in connecting visualisations with R and Python to create meaningful insights. For the National Student Survey Portal developed for OfS, we implement R as an audit and check tool by parsing data via pre-defined workflows to check sparsity, comparisons on previous year, and data validations based on set conditions.	95	Not shortlisted	Good response	
ONS	Matching System	Experience of VMWare/VSphere (1 point)	We migrate legacy platforms, develop and host new applications on VMWare, AWS and Azure PaaS platforms for 5+ years. Texuna were able to start Department for Education Secure Access application cluster on an isolated in-house implementation hosted on VMWare in Eduserv. Today we use Ansible, Terraform and Docker containers to simplify infrastructure portability e.g. with eDisclosure services for Dept for Finance Ireland.	61	Not shortlisted	Good response	
ONS	Matching System	Knowledge of working with geospatial data (2 point)	Texuna have presented geographic data on maps for a number of our projects as follows: *Location data is used to search for educational establishments in the EduBase portal using Google Maps. *Our SIR data collection system displayed location data using Map base. *Jisc can use reports defined in Tableau to look at regional and local maps and presentations. *TravelGuide is a smart location-aware mobile app that makes exploring travel, history and sights data from multiple sources including Wikipedia available easily.	80	Not shortlisted	Good response	
ONS	Matching System	Experience working with APIs (1 point)	Texuna's architecture centres around REST API management to facilitate back-end independence, mobile application integration, standalone front-end development to ensure the delivery of an enterprise-ready architecture. For example, the fully functioning API for DfE - GIAS system based on GDS and Open standards is an enterprise-ready API-based integration interface over a legacy back-end that enables independent delivery of GDS responsive front-end. We standardised collaboration with tools like Swagger/SwaggerUI for automatic documentation and visualisation of API. Each endpoint is comprehensively documented using standard rules in a very user-friendly form. The entire RESTful service is described fully in YAML and/or JSON format.	98	Not shortlisted	Good response	
ONS	Matching System	Experience of different data formats (e.g. CSV, JSON, Avro, Parquet) (1 point)	Texuna have built a number of data collection platforms that ingest a number of different formats including eForms, PDF scans and XML for data submissions. For example, Fostering Data collection (Ofsted), Local Authority, and Independent Fostering Agencies can make submissions in CSV, Excel, XML, and JSON. Each format is converted to a conformed data model; then validated against business rules. Another example - Education and Training Foundation solution for the staff census collection and publication/reporting incorporated 30 different formats, including .CSV, .TSV, fixed length and XML. Texuna's big data projects have managed a variety of formats including Avro and Parquet.	100	Not shortlisted	Good response	

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RFS	Road Freight Electronic data	Demonstrable evidence of delivering an alpha phase in line with GDS guidelines for a government department	Texuna natively understand the 18 GDS delivery principles. We delivered Ofsted Fostering Data Collection in 2017-2018 using agile methodology subject to the GDS Alpha Service Standard. Alpha delivery included monthly show-and-tells to demonstrate progress to the Project Board. Texuna used behaviour-driven development (Selenium Webdriver) and GDS frontend toolkit to finalise the Alpha prototypes to set early baselines for deployable code. We reused GDS frameworks and patterns for Single Page Apps, and delivered a prioritised backlog of User Stories at end of Alpha to baseline beta phase work. Alpha was successful and the project continues in beta phase.	96	Not shortlisted		
RFS	Road Freight Electronic data	Demonstrable evidence of successfully designing and testing digital collection methods via simple web browser with a diverse mix of users, iterating project work accordingly	Ofsted Fostering Data Collection web-application was conceptualised and delivered in-full within 5-months ready for 2018 collection period. Texuna combined user-led approach with rapid prototyping of increasing fidelity to deliver composite videos of prototype versions. We iterated continuously with regular demonstrations to real users; solicited feedback; used specialist tools to simulate accessibility issues to keep designs inclusive. We also worked with Indeemo, a qualitative research video startup to research product design and to inform user research and experience/usability. We received extremely positive feedback from local authority users and Ofsted staff for the final digital service experience.	95	Not shortlisted		
RFS	Road Freight Electronic data	Demonstrable experience where delivering successful alpha outcomes assisted to support and shape system developments	Ofsted contracted Texuna to pickup alpha prototypes and deliver a working fostering portal to automate the data collection process and eliminate significant manual effort of users and staff. The Fostering Data Collection App passed into a public beta launch in May 2018. Texuna delivered solution that focused on user needs and outcomes. We reused available GDS Single Page App design patterns and followed standards throughout user-centered agile sprints and iterative delivery reviews with internal stakeholders and external endusers. We introduced communication channel automation between Ofsted and Fostering agencies, helping Ofsted meet strategic objectives as confirmed by written feedback.	98	Not shortlisted		
RFS	Road Freight Electronic data	Demonstrable evidence of establishing a set of secure APIs using open standards in line with GDS requirements	Texuna have worked with GDS specifications since 2017 to deliver a fully functioning API to join backend systems with a new SPA frontend, aligning with GDS design patterns and standards (DfE GIAS). Texuna is a REST API integration expert, using YAML-based documentation to automate code generation in a language-independent way. This streamlines development with well-formatted documentation and test stubs provided through Swagger. Simplified integration code and automatic test scripting give high-quality assurance long term over the REST API. Performance and penetration testing of REST API guarantees security and availability of live services (Jisc Data Warehouse).	94	Not shortlisted		
RFS	Road Freight Electronic data	Have demonstrable experience of complex technical investigation to inform future project stage	Texuna's Business Analysts focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. For Jisc data governance we conducted a source system audit during the Discovery Phase to map the sources, locations, network details, infrastructure and platform stack and key stakeholders (sysadmins, license holders, business users etc.). We built a catalog of source systems and a data ownership framework, creating a RACI matrix and data supply contract template for the business to implement. Our experts focus on value for money, platform independence and project execution.	97	Not shortlisted		
RFS	Road Freight Electronic data	Demonstrable evidence Proven track record of successfully delivering projects at speed using an agile project management methodology with clearly identified deliverables and timescales.	Texuna have a track record of on-time delivery in complex projects with tight timeframes. Our project at Jisc implemented an EDW from Discovery to Live using Agile with agreed 90-day delivery timeboxes. Ofsted Fostering Data Collection was based on user-centered, rapidly-prototyped agile sprints and iterative delivery reviews with internal stakeholders and external end users. Our multidisciplinary team has a keen focus on security, privacy and penetration testing. We partner with our clients to ensure stakeholders are fully involved daily throughout the project. Ofsted was conceptualised and delivered on time and within budget, and received excellent feedback from the project team.	100	Not shortlisted		
RFS	Road Freight Electronic data	Demonstrable evidence and experience of drawing up recommendations and options for beta on IT and data projects	Texuna planned a 2-year project with Jisc incorporating Discovery, Alpha, multiple Beta phases and a Live handover. We created a conceptual visualisation of the entire project and outlined high-level Capabilities and desired Outcomes for different user journeys as Epics. We used RICE/MoSCoW matrix with estimates for each Epic to clarify priorities with stakeholders. Outcomes were deliverable every 12 weeks. By the end of the Discovery we had created a backlog of the key User Stories - which would subsequently grow to 1,000+ delivered by Handover. After each phase, outcomes and estimates were reviewed and re-prioritised as necessary.	97	Not shortlisted		
RFS	Road Freight Electronic data	Demonstrable evidence where innovative solutions have been applied to assist in project delivery.	Texuna take great pride in the innovation and business benefits delivered to customers. 15 years ago, Texuna integrated disparate dataflows to deliver novel sector-wide processes for funding, performance tables and ministerial questions. Today Texuna offer cloud-first DevOps containerisation, Data Mining, Machine Learning and AI as-a-service to central government. This highlights how Texuna have continually innovated new data services delivering greater business benefits through modern technology and understanding needs. Innovation is not limited to technology. Analysis methods and services are also at the forefront of modern thinking. A good example is the university collaboration and research on visual workshopping found: http://datavaluemap.com.	100	Not shortlisted		
RFS	Road Freight Electronic data	Demonstrable evidence of successfully managing and assisting in delivering IT projects within public sector organisations.	Texuna, established in 2000, are a company who specialise in data management solutions. We have a strong track record of successful project delivery to the Education sector and particularly to the DfE (since 2008) and government agencies. The ITTDMS (DfE) began in 2003 as a single data collection and grew to 10 annual collections seamlessly, where Texuna designed and ran the operational service. For Jisc data warehouse we designed a data classification and obfuscation scheme to manage data movement between environments. Other projects: *GIAS(DfE) *Itembank(STA) *National Student Survey(OfS) *Fostering Data Collection(Ofsted) Our public sector implementations have passed gateway standards reviews and deemed fit-for-purpose.	100	Not shortlisted		

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
RFS	Road Freight Electronic data	Demonstrable evidence of using clear development methodologies, outlining how this would work in conjunction with a client's internal development team.	Texuna work collaboratively on an open book basis as extension of the client team to build internal competence and capability. We use existing project and collaboration tools to minimise friction and maximise knowledge transfer, or introduce alternatives if necessary. Texuna collaborated with Jisc to implement the EDW project (2016-17). We maximise staff engagement during design and implementation. Texuna trained Jisc staff to work with new, agile data pipeline methodologies. We worked onsite on daily basis with combined team responsibility for several major releases. We coached and mentored existing and new Jisc staff throughout the development cycle from requirements to testing.	99	Not shortlisted		
Cabinet Office	Analysing and Managing Documents	Experience managing successful delivery within a complex multi-organisation landscape (3 points)	Texuna have extensive experience of modeling high-level architecture for large-scale EDW projects with a range of clients. This includes a greenfield project with Jisc to integrate data across 3 independent business units, across 120+ services to its members (HE, FE and other institutions) and an estate of dozens of legacy systems. We delivered on organisation-wide opportunities motivating each business unit towards new business processes whilst respecting and leveraging what was already available. Texuna's solution implemented web portals and authentication with RBAC to provide different user personas a customised system views and limit privileges to defined roles.	96	Not shortlisted		
Cabinet Office	Analysing and Managing Documents	Experience using natural language processing and machine learning technologies (3 points)	Texuna has experience working with natural language processing and machine learning technologies. As part of our work with Jisc, Oxford Brookes and the DfE, we have used the following tools and frameworks to help parse and cleanse millions of unstructured data rows: *Python's Juypter Notebooks with packages such as Natural Language Toolkit (NLTK), TextBlob, CoreNLP, Gensim, spaCy, polyglot *R with packages such as (tidytext, dplyr, tidyr, broom, ggplot2) *Pentaho Data Integration to securely parse data mined to secured sources. We have recently incorporated machine learning as part of our automated testing suite for OBU based on supervised learning (regression testing).	100	Not shortlisted		
Cabinet Office	Analysing and Managing Documents	Experience of successfully designing and delivering services aligned to GDS service standards or equivalent (3 points)	Texuna implements the 18 Digital Service Standard principles. Texuna have successfully delivered discovery/alpha/beta projects to the GDS standards. All Texuna user-facing deployments are at least WC3 AA level accessible and have been independently tested. DfE's GIAS is a strong example of leveraging GDS standards and guidelines successfully. GDS templates ensure the system's UI, look and feel, user journeys and architecture conformed to GDS allowing uncomplicated integration with other UK government systems. This work has successfully passed several GDS reviews, external penetration testing, risk and security assessments. Feedback is extremely positive, with the service now delivering new needs, leveraging principles and standards established	100	Not shortlisted		
Cabinet Office	Analysing and Managing Documents	Experience of digital projects handling complex, sensitive data at scale (3 points)	Texuna have 15+ years public sector experience managing sensitive data, with a deep understanding and practical experience of government needs. We delivered complex data management solution (GIAS) for the DFE and an Enterprise Datawarehouse for Jisc. We use cloud tools to implement robust engineering designs for enterprise-level solutions, giving growth flexibility and scale. With GIAS we saw: ~87,000 establishment records, +200,000 user accounts, and 250+ fields per establishment. With Jisc we saw: 100 data sources+ with approx 3-5million records stored on AWS daily. Texuna are certified under the ISO27001 standard, all staff are trained for security and GDPR compliance.	99	Not shortlisted		
Cabinet Office	Analysing and Managing Documents	Experience using variety of user research methods, including prototyping (2 points)	Texuna team up with UXD experts Adhoc Global for advanced User Research expertise. We use visual, interactive design-thinking techniques in lean startup style workshops with stakeholders and representative users. We generate personas, user journeys, service touchpoints and hypotheses to test. We move from paper to low-fi and video composite wireframes to generate alternatives before prototyping hi-fi design mockups with InvisionApp. We use the GDS SPA Design toolkit to generate working prototypes with API stubs, with agile iterations through sprint reviews with users. This process was followed fully for the public Fostering Data Collection (Ofsted).	94	Not shortlisted		
Cabinet Office	Analysing and Managing Documents	Experience of managing successful delivery alongside other suppliers (2 points)	Texuna have worked with GDS teams and 3rd party designers to integrate legacy schools database (GIAS) to a GDS compliant Single-Page App that better meets user needs. The front-end UI was developed by OliveJar while the backend database and API service was delivered by Texuna. Active partnership between 3 key parties was crucial for this project. Texuna participated in all planning meetings with DfE and OliveJar, advising on all elements of work to ensure continued success of GIAS project. GIAS has been well received and is under continuous active development to meet the moving needs of the DfE.	97	Not shortlisted		
The Department for Transport and Highways England	Temporary Bridge Solutions information	Demonstrable experience of delivering a citizen facing services quickly.	Texuna solutions typically have multiple end-user types including internal and external users. For the NSS project, we have delivered a Dissemination and Consultation Portal. Used since 2014 to assess stakeholder needs, usage has seen a 10% growth annually, feeding into the overall design of the system. The system supports one of the largest statistical publications in the UK with over 1K+ users accessing the portal on publication. Texuna incorporates industry standard tools and best practices to continuously iterate development with features being added each year. The consultation period sees over 9k touchpoints with feedback considered and discussed with relevant stakeholders.	100	Not shortlisted	1 point (3 max)	
The Department for Transport and Highways England	Temporary Bridge Solutions information	Demonstrate passing .Gov service assessments.	Texuna have integrated services and built solutions following GDS standards and guidelines to the required level of usability and accessibility for many projects. Texuna works with the DfE and has successfully passed many needed reviews, external penetration testing, risk and security assessments. Most recently the GIAS application went through a formal IT Health Check, with external tests being carried out by BSI. These tests have been successfully passed, and GIAS is now awaiting GDS Live assessment. We delivered Ofsted Fostering Data Collection subject to the GDS Alpha Service Standard.	89	Not shortlisted	Not scored	
The Department for Transport and Highways England	Temporary Bridge Solutions information	Demonstrate excellent planning, coordination, communication and project management skills	Texuna deliver full lifecycle projects planning across and within phases, blending Prince2 and agile methodology. High-level plans are based on customer Product Manager priorities. Epics, T-shirt sizing and RICE prioritisation support the understanding of needs, discussion and approval. Constant Backlog grooming and team Sprint Planning and Sprint commitment meetings are employed for more granular planning. Texuna manage the balance between flexibility and sufficient discipline to meet commitments. Texuna's current projects include those with multi-sited, multi-national teams, with continued successful delivery of milestones for clients due to our project planning and coordination.	91	Not shortlisted	Not scored	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
The Department for Transport and Highways England	Temporary Bridge Solutions information	Experience of working in/with teams with no/limited experience of Agile methodologies	Texuna work collaboratively on open book basis as an extension of the client team to build internal competence and capability. We use the client's collaborative tools to improve transparency and eliminate friction. In Jisc we worked onsite alongside Jisc staff, transferring skills, mentoring and coaching daily across multiple locations. All levels and roles were engaged to build awareness and understanding of user-led projects in an agile way. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives.	99	Not shortlisted	Not scored	
The Department for Transport and Highways England	Temporary Bridge Solutions information	Have demonstrable experience of working in a culture of continuous delivery and improvement	We work with the DfE to host GIAS, using continuous integration and continuous deployment to Azure to automatically manage operations together with other GDS suppliers. Our CI/CD is based on: *GIT for version control; *Jenkins CI for dependency management, package preparation and delivery; *Junit for unit testing and Allure for automated regression testing; *Ansible and Terraform for provisioning and deployment. Texuna developed a system for continuous automatic testing of ETL transformations for data projects. The framework simplifies test development, testing each data stream separately to cut testing time through automated regression reports. It uses PyTest and Allure.	97	Not shortlisted	Not scored	
ONS	Energy Data Visibility Discovery	Knowledge of the ONS and its services	Texuna has worked with ONS datasets over many years. The primary datasets used are for the DfE's Get Information About Schools (GIAS) project, where the address details of records held are matched against ONS postcode data files to ensure that locality information is automatically updated. This integration involves a manual recheck every 12-18 months to ensure the correct location data is held with the appropriate latest mappings. The GIAS application also integrates with the addressbase database for postcodes and Texuna regularly consults ONS datasets to ensure information is populating correctly for establishment records.	93	Not shortlisted	1.2 points (out of 4 max)	
ONS	Energy Data Visibility Discovery	Knowledge of working in a cross-departmental government environment	Texuna currently delivers the Get Information About Schools (GIAS) project for the DfE. Texuna has worked on this since 2008 (when it was called EduBase). GIAS is the single source of truth for schools in England, and delivering this project involves working with a wide range of DfE teams, both onsite and remotely. Texuna also need to work with parties external to the DfE t. It also involves liaising with external teams such as Ofsted (to provide rating data), UK Register of Learning Providers (UKPRN information) and ONS (address and location data).	92	Not shortlisted	1.2 points (out of 4 max)	
ONS	Energy Data Visibility Discovery	Knowledge of working across different levels of government and sectors	Texuna works with a wide array of government, public and private sector entities. We deliver projects for government departments, such as GIAS and ItemBank (Department for Education); we deliver projects for other public entities such as the National Student Survey for the Office for Students as well as a fostering data collection tool for Ofsted. We also work with a number of Universities in the UK and Ireland, developing solutions as diverse as EDW platforms and student placement applications. We also work with a number of private companies in a B2B SaaS model.	93	Not shortlisted	1.2 points (out of 4 max)	
ONS	Energy Data Visibility Discovery	Experience of delivering a discovery phase in line with GDS guidelines for a government department	Texuna has experience of running discovery phases, which produces actionable Project Execution Plans based on lean startup techniques. We translate the business case strategy into a portfolio backlog of testable User Journeys and User Stories. Scope definition and agile prioritisation ensure critical success factors are addressed first. Texuna used these techniques while working with Ofsted to build the Annual Fostering Data Collection system, and a web platform was built on the back of this discovery phase. The project has been run to GDS service standards, has passed several reviews and external penetration tests and assessments.	95	Not shortlisted	6 points (out of 12 max)	
ONS	Energy Data Visibility Discovery	Proven experience conducting and documenting user research with a diverse mix of users, iterating project work accordingly	Texuna delivered the Ofsted Fostering Data Collection web-application in 2018, which was conceptualised and delivered in-full within 5-months. Texuna combined a user-led approach with rapid prototyping of increasing fidelity to deliver composite videos of prototype versions, carrying our targeted research with the dedicated Ofsted team throughout. We iterated continuously with regular demonstrations to real users; solicited feedback; used specialist tools to simulate accessibility issues to keep designs inclusive. We received extremely positive feedback from local authority users and Ofsted staff for the final digital service experience.	86	Not shortlisted	3.6 points (out of 12 max)	
ONS	Energy Data Visibility Discovery	Experience summarising user research findings, validating these and disseminating this to stakeholders	Our sector work gives us insight to Departmental goals and objectives. Our staff are excellent communicators because of strong stakeholder collaboration and focus on empathy-building. Our partnership approach engages all levels of the business summarising findings through people-focused workshops, user research, surveys and written communications. Our analysts test assumptions with low fidelity people-based journey maps, create user stories, prioritising them into backlogs with stakeholders based on Reach-Imact-Confidence-Effort matrix. We use a "show-not-tell philosophy", and constantly engage real users with sprint reviews and developer retrospectives. We use visual communication to ensure results are well understood by senior leaders and everyday users.	100	Not shortlisted	4 points (out of 8 max)	
ONS	Energy Data Visibility Discovery	Proven track record of iterative delivery using agile methodologies	Texuna have a track record of iterative delivery using agile methodologies. Jisc EDW is a good example. We jointly defined the tools, techniques and methods to be used with Jisc. We formalised roles with product owner responsible for deciding just-in-time, priority-ordered backlog of stories. We started with extended Discovery phase to nail down needs and scope with stakeholders and users. Alpha phase delivered MVP and tested infrastructure assumptions. Four 90-day 'rolling-wave' betas followed, using agile approach to define multiple epics and expanding on stories. We delivered working user journeys and datasets to Live in predictable way guaranteeing useful outcomes regularly.	100	Not shortlisted	4 points (out of 8 max)	
ONS	Energy Data Visibility Discovery	Experience devising user-centric digital services with wide ranging users	Texuna solutions are designed for use by large, diverse user communities. We combine GDS standards and best practices with our design thinking and user journey mapping. Our design-thinking approach requires designers to empathise with and foresee how different user-groups respond to design. Designers test the validity of key design decisions and assumptions through real-world engagement and prototyping with actual users. For Ofsted we prototyped screens that were user-tested and changed prior to formal UAT. We interacted with sample user groups to determine specific needs and issues. We matched published GDS standards and best practices with design thinking and customer journey mapping.	100	Not shortlisted	2.4 points (out of 8 max)	

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ONS	Energy Data Visibility Discovery	Experience working with data (such as modelling and/or architecture)	Texuna's Technical and Solutions Architects ensure technology selection and software architecture including effective data modelling and data processing techniques, scalable and fault-tolerant distributed system design, security and privacy-by-design with effective deployment strategies. For Jisc we created a conformed data model to identify and integrate new and existing data systems. Texuna developed a Kimball-style Enterprise Business Matrix to identify opportunities for conforming data models and integrating datasets. The data mart architecture collects data from 22 systems representing 140+ data streams. Now Jisc processes billions of data points to produce 250GB EDW of pre-processed historic data in columnar stores.	96	Not shortlisted	4 points (out of 8 max)	
ONS	Energy Data Visibility Discovery	Experience working with metadata (such as standards and formats)	Texuna solutions are fully compliant metadata-driven solutions. The STA ItemBank solution encompasses a fully flexible metadata functionality where users can import metadata for items to an existing question stored within Item Bank or by creating a new question prior to importing. This facilitates the discovery and identification of specific missing metadata within the ItemBank as new additional descriptive metadata reports are available. Texuna engaged and delivered STA's requirements to extremely tight timelines.The ItemBank project has reduced development time and costs through improved validation and visibility of materials, efficiencies in processes, reuse of material, and reduction in burdens.	97	Not shortlisted	4 points (out of 8 max)	
ONS	Energy Data Visibility Discovery	Experience of data curation, such as matching and linking or management of slowly changing dimensions	Texuna are data managers, and partner with Pentaho for ETL and AWS for Reshift warehouse (both used on the Jisc cloud-hosted EDW). For the Jisc application we used a metadata injection framework to help standardise and automate over 140 feeds to create a data pipeline. We delivered a star schema with support for Type2 Slowly Changing Dimensions. We automated pipeline metadata delivery to a wiki to track data lineage and report calculations. Our strong expertise in data matching and cleansing provides solutions which increase data quality with full audit and traceability.	91	Not shortlisted	1.8 point (out of 6 max)	
ONS	Energy Data Visibility Discovery	Experience of drawing up recommendations and options for alpha business cases for digital/data services	Texuna's history is in the educational sector making recommendation to delivery business benefits through innovative digital services. Effective requirements analysis is key so consensus models, options and recommendations can be agreed. For instance, the OfS NSS service's recommendations to introduce a repeatable analytical pipeline. This automated process reduced costs/timelines, whilst increasing quality. This in turn supported OfS becoming an Official UK Publisher of Government Statistics. Additionally, Texuna's Jisc data warehouse recommended and reorchestrated dataflows/governance across dozens of systems. These delivered on data dissemination and process improvement needs, included the creation of an enterprise business model canvas with senior leaders.	99	Not shortlisted	3 points (out of 6 max)	
ONS	Energy Data Visibility Discovery	Collaborating effectively as a workstream in a large-scale programme environment spanning institutions as well as government and private sector organisations	Texuna Business Analysts worked across Jisc's 3 independent business units, ~150 stakeholders (including representatives for the HE sector), and an estate of dozens of legacy systems on a 2-year enterprise data governance, warehouse and BI project. A 4-month discovery phase elicited and analysed needs, strategy (operational to strategic), source systems, governance, data owners and future directions for upgrades and data integration. ~100 interviews and dozens of workshops were carried out across team boundaries to create a confirmed and shared information architecture for more than 100 Jisc services, including a consensus model for improved information delivery to the sector.	98	Not shortlisted	1.8 point (out of 6 max)	
ONS	Energy Data Visibility Discovery	Experience with open working and delivery of wider progress updates to wide ranging stakeholder communities and inviting effective feedback	Texuna work with the public sector by assisting to migrate them to agile-driven, user-focused and priority-driven project management, requirements prototyping and sprinting code deployment. We work collaboratively on an open book basis so they have full visibility and opportunity to participate in development, testing and operation. We used existing tools to minimise friction and maximise knowledge transfer, or introduce alternatives if necessary. In Jisc we worked onsite alongside Jisc staff, transferring skills, mentoring, and coaching daily across multiple locations. We have worked with the DfE on a range of projects that involve discussions with members and departmental users.	98	Not shortlisted	3 points (out of 6 max)	
DfT	RAIDS – Database Discovery Exercise	Have experience of delivering a discovery phase in line with GDS guidelines for a government department	For the Ofsted Fostering collection Texuna started with a discovery phase, beginning lean with wireframes and moving onto video composites and hi-fi interactive prototypes we learned and progressed on hypotheses. Texuna combined user research with our 15+ year experience operating NCTL data collections to re-imagine a new cloud digital service, building out User Journeys on paper to generate a User Story backlog. For Jisc, Texuna ran a 90-day Discovery phase with 100+ interviews and a dozen workshops for their Enterprise Data Warehouse. Texuna also do annual User Research workshops for OfS to continuously improve our National Student Survey data dissemination.	100	Not shortlisted	1 point (out of 3 max)	
DfT	RAIDS – Database Discovery Exercise	Have proven experience conducting and documenting user research with a diverse mix of users, iterating project work accordingly	Texuna team up with UXD experts Adhoc Global for advanced User Research expertise. Texuna use visual, interactive design-thinking techniques in lean startup style workshops with stakeholders and representative users. We generate personas, user journeys, service touchpoints and hypotheses to test. We move from paper to low-fi and video composite wireframes to generate alternatives before prototyping hi-fi design mockups. We use the GDS SPA Design toolkit to generate working prototypes with API stubs, with agile iterations through sprint reviews with users. These techniques were used for the Ofsted Fostering collection which has proven to be a highly successful and ongoing project.	100	Not shortlisted	N/A	
DfT	RAIDS – Database Discovery Exercise	Demonstrate experience of delivering successful Discovery outcomes assisted to support and shape system developments	Texuna planned a 2-year project with Jisc incorporating Discovery, Alpha, multiple Beta phases and a Live handover. We created a conceptual visualisation of the entire project and outlined high-level Capabilities and desired Outcomes for different user journeys as Epics. We used RICE/MoSCoW matrix with estimates for each Epic to clarify priorities with stakeholders. Outcomes were deliverable every 12 weeks. By the end of the Discovery we had created a backlog of the key User Stories - which would subsequently grow to 1,000+ delivered by Handover. After each phase, outcomes and estimates were reviewed and re-prioritised as necessary.	97	Not shortlisted	N/A	
DfT	RAIDS – Database Discovery Exercise	Demonstrate experience of complex technical investigation to inform future project stage	For the Jisc Enterprise Datawarehouse project we conducted a source system audit of over 100+ services during the Discovery Phase to map the sources, locations, network details, data, infrastructure and key stakeholders (sysadmins, license holders, business users etc.). We built a catalog of source systems and a data ownership framework, creating a RACI matrix and data supply contract template for the business to implement. We also ran a series of workshops to focus on data quality and to conform metrics and dimensions, including helping data owners to clean up poor quality data at source through data matching and reconciliation techniques.	100	Not shortlisted	N/A	
DfT	RAIDS – Database Discovery Exercise	Have a proven track record of delivering projects at speed using an agile project management methodology with clearly identified deliverables and timescales	Texuna have a track record of on-time delivery in complex projects with tight timeframes. In 2018 Ofsted contracted Texuna to create a data collection portal to assist in automating the process for end-users and the Ofsted staff. We engaged to deliver the solution within the tight timelines set out by Ofsted. Texuna committed to deliver a GDS compliant, live, nationwide data collection portal with regular deliveries using an Agile methodology with collaborative sprints. As a result Ofsted was conceptualised and delivered in-full within 5 months ready for the 2018 collection period. Feedback from users was excellent.	96	Not shortlisted	N/A	

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DfT	RAIDS – Database Discovery Exercise	Demonstrate evidence of using clear development methodologies, outlining how this would work in conjunction with a client's internal development team	Texuna trained Jisc staff to work with new, agile data pipeline methodologies, mixing lean, agile and kanban techniques with collaboration tools already in place within Jisc. We worked onsite on daily basis with combined team responsibility for several major releases. We coached and mentored existing and new Jisc staff throughout the development cycle from requirements to testing. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronize everyone in daily standups, regular sprints, reviews and retrospectives.	89	Not shortlisted	N/A	
DfT	RAIDS – Database Discovery Exercise	Have experience of drawing up recommendations and options for alpha/beta on IT and data projects	Texuna's history is in the educational sector making recommendations to deliver business benefits through innovative digital services. Effective requirements analysis is key so consensus models, options and recommendations can be agreed. For instance, Texuna worked with Jisc across 3 independent business units with many legacy systems on a 2-year enterprise data warehouse project. Texuna conducted a 4-month discovery phase analysing sources, looking at governance, data owners and future directions. Texuna recommended and reorchestrated dataflows/governance across dozens of systems. These delivered on data dissemination and process improvement needs, including the creation of an enterprise business model canvas with senior leaders.	99	Not shortlisted	N/A	
DfT	RAIDS – Database Discovery Exercise	Have experience in conducting stakeholder analysis where knowledge gaps were identified and plans implemented to address the shortfall.	Texuna works in transparent partnership with our clients. Thoughtful stakeholder analysis and management strategies promote a partnership, engaging all levels of the business. Texuna's approach focuses on ensuring that high levels of quality technical documentation is generated to support handover and on-the-job training. Texuna worked collaboratively onsite with Jisc over 2 years to deliver EDW. Where knowledge gaps were identified, we worked with stakeholders to implement solutions. Texuna acted as an extension of Jisc to build internal competence and capability. The project led to the successful delivery and establishment of a centralised governance team with training to core stakeholders.	99	Not shortlisted	N/A	
DfT	RAIDS – Database Discovery Exercise	Demonstrate evidence where innovative solutions have been applied to assist in project delivery	Texuna take great pride in the innovation and business benefits delivered to customers. 15 years ago, Texuna integrated disparate dataflows to deliver novel sector-wide processes for funding, performance tables and ministerial questions. Today Texuna offer cloud-first DevOps containerisation, Data Mining, Machine Learning and AI as-a-service to central government. This highlights how Texuna have continually innovated new data services delivering greater business benefits through modern technology and understanding needs.

Innovation is not limited to technology. Analysis methods and services are also at the forefront of modern thinking. A good example is the university collaboration and research on visual workshopping found: http://datavaluemap.com. | 100 | Not shortlisted | N/A | |
| DfT | RAIDS – Database Discovery Exercise | Demonstrate evidence of successfully managing and assisting in delivering IT projects within public sector organisations. | Texuna works with a wide array of government, public and private sector entities. We have been suppliers of various public sector bodies since 2003, and current deliver projects to clients such as:
* Department for Education: GIAS, a database of establishments in England & Wales. ItemBank, a web-base metadata solution with provides assessment data management.
* Office for Students: NSS results dissimination portal, deliving the results of the National Student Survey.
* Ofsted: Portal to capture fostering data information on an annual basis.
These projects have all been ongoing for a number of years and have been successful in their delivery. | 99 | Not shortlisted | N/A | |
| DfT | RAIDS – Database Discovery Exercise | Demonstrate evidence of using NCSC's Security Design Principles for Digital Services (https://www.ncsc.gov.uk/guidance/security-design-principles-digital-services-main) | Texuna adopt "security-by-design" and "privacy-by-design" principles to ensure appropriate mechanisms to make Taxuna solutions secure and to safeguard sensitive data under GDPR obligations. Security and audit strategies are designed around both data and named user access. We apply this approach to all our projects.

Texuna follow a formal secure development policy and development process that is audited and certified by BSI to ISO27001. We have passed Government audits and RMADs assessments including third-party penetration tests, and we hold Cyber Essentials with IASME. All staff work to secure standard and technical vulnerability prevention as a key requirement across all code and data. | 100 | Not shortlisted | N/A | |
| DfE | Service Delivery Capability | Provide high-level directional service delivery across the digital portfolio | Texuna deliver full lifecycle projects planning across and within phases, blending Prince2 and agile methodologies. High-level plans are based on Product management prioritization techniques such as Epics, T-shirt sizing and RICE model as they support the understanding of needs, discussion and approval. Frequent backlog grooming, team Sprint Planning and Sprint commitment meetings are employed for more granular planning.

Texuna manage the balance between flexibility and sufficient discipline to meet commitments. Texuna's Jisc project included those with multi-sited and multi-national teams, with continuous successful delivery of milestones for clients due to our expertise in project planning and coordination. | 97 | Not shortlisted | N/A | |
| DfE | Service Delivery Capability | Demonstrate working knowledge and understanding of agile methodology and the application through the delivery process | Texuna follow a Disciplined Agile Delivery methodology to ensure user needs are met within the strategic objectives of the enterprise. This methodology is applied across numerous software development, data management, data warehousing and analytics projects.

Texuna has delivered over 20 GIAS Agile sprints with DfE using agile methodology. Texuna utilises tools such as Zoom, Slack and Azure DevOps to manage sprint planning, backlog grooming and prioritisation based on user stories and team communications. Daily standups and bi-weekly sprint reviews are scheduled to ensure issues are managed, lessons-learned retrospectives are conducted and users are continually appraised through the use of feedback. | 100 | Not shortlisted | N/A | |
| DfE | Service Delivery Capability | Evidence of recommendation of changes to new and existing digital services | Texuna's focus in the education sector, allowed it to forge a reputation for making recommendations for delivering business benefits through creative digital services.
Texuna worked with Jisc on a 2-year EDW project across 3 business units comprising legacy systems. We conducted a 4 month discovery phase analysing sources, governance and data owners.
As a result, we were able to advise and reorganise data flows / governance across systems which led us to meet Jisc's needs in terms of data dissemination and process improvement, including creating a business model canvas with senior executives. | 92 | Not shortlisted | N/A | |
| DfE | Service Delivery Capability | Manage the full product lifecycles inc business analysis, user research, design, delivery and the continuous improvement of one or more transactional services or platforms | Texuna deliver full lifecycle planning across phases of a project. GIAS is a high transaction system achieving 1000+ concurrent sessions at peak and offers the department stakeholders, schools and the public access via sophisticated access control system. We managed GIAS solution since 2008 (initially EduBase) by providing database, access control and performance capabilities.

Texuna were contracted by the DfE to deliver business analysis and user research consultancy as an intiative in the Data Directorate in Darlington. Leading to a successfull 3-month discovery with a strong focus on continous service improvement of six operational legacy systems. The project moved to Alpha. | 100 | Not shortlisted | N/A | |

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DfE	Service Delivery Capability	Illustrate the ability to develop and deliver communication plans for services/products which engages users across many channels	Texuna engage effectively with stakeholders, businesses and public sector users. For the Jisc EDW project, Texuna worked onsite to establish a new warehouse team and a governance process. For the change programme to be successful, an 'all' people involvement was crucial, ranging from experts/stakeholders to staff/customers.

Establishing a clear communication plan, rules and contact points was essential for Texuna to create a formal 'Information and Data Governance Group' with data owners and stewards. Texuna are mindful of people's contribution and difference to expertise, using visual problem-solving tools to arrive at a shared understanding of problems and solutions to reach desired outcomes. | 100 | **Not shortlisted** | | |
| DfE | Service Delivery Capability | Proven experience of working closely with other suppliers/teams on rapid prototyping and delivering at pace | Texuna partnered with UXD experts AdhocGlobal for advanced User Research expertise. The use of visual and interactive design-thinking techniques in lean startup style workshops were applied when working alongside stakeholders and representative users.

Texuna's years of experience in rapid prototyping with B2C startups has led us to increase fidelity to deliver composite videos of prototype versions. The design process is improved through iterative prototyping which calls for regular demonstrations to users in order to solicit feedback. Texuna used specialised tools to ensure Ofsted's Fostering portal was conceptualised and delivered within 5months, going from paper-based to production-ready prototypes through regular show-and-tell's. | 100 | **Not shortlisted** | | |
| DfE | Service Delivery Capability | Experience taking products and services successfully through different phases of the delivery lifecycle and assessment process. | Texuna has successfully delivered discovery, alpha and beta projects aligned with GDS Technology Code of Practice, standards and guidance, and progressed in the later stages of the software release lifecycle up to the official Live phase. This includes user research, agile delivery and Test-Driven-Development coding.

Texuna's work with the DfE on the GIAS project is a good example of this. The project has successfully passed several reviews, external penetration testing, risk and security assessments in the last 3 years. The work delivered was valued, thus in 2019, Texuna began a new scope of work as GIAS moves from Beta to Live. | 100 | **Not shortlisted** | | |
| DfE | Service Delivery Capability | Provide insight, structure, guidance and support to digital delivery programmes, | Texuna has successfully delivered projects aligned with the GDS Technology Code of Practice, standards and guidance. This includes user research, agile delivery and Test-Driven-Development coding.

For the SecureAccess project, Texuna delivered a solution which allowed single-sign-on for 10 distinct DfE applications (all from various vendors using various technologies). All updates to SA required constant communication and close collaboration with stakeholders from all 10 applications to ensure they were unaffected. SecureAccess acts as common gateway where security, access and permissions can be standardised and applied across different systems. The solution supports future unknown services and data integrations as they arose. | 98 | **Not shortlisted** | | |
| DfE | Service Delivery Capability | Advocate for the importance of agile, iterative and user-focused delivery, as set out in the Government Service Manual | Rigorously adhering to GDS principles, Texuna helps clients which are unfamiliar with Agile to engage them.

Texuna worked with Jisc to introduce EDW and through that project trained Jisc staff to use our methodologies and work in an agile manner. Texuna were working alongside team members on a daily-basis with joint responsibility for delivery of some releases. Each stage of the development lifecycle, i.e. from requirements to testing, included coaching and mentoring the Jisc staff. We identified and allocated team roles, established shared agile terminology, created pragmatic processes and shared agile management tools to do daily standups, regular sprints/reviews and retrospectives. | 100 | **Not shortlisted** | | |
| DfE | Service Delivery Capability | Proven experience prioritising user needs (using qualitative and quantitative data) with the team and incorporating user needs | Texuna applies two distinct prioritisation techniques such as RICE score model to assess project priorities, or MoSCoW method to manage requirements priorities. The backlog of priorities is continously updated during sprint planning to reflect any changes in requirements.

Texuna hosts the NSS Results Portal allowing the sector to build analysis on existing NSS data (Both quantative and qualatative). Annually, new requirements are discussed and prioritised for the upcoming Publication. Meetings with the OfS are conducted on a weekly basis to discuss the the requirements (i.e. new features or amendments), and to ensure the backlog is re-prioritised to reflect changes made. | 100 | **Not shortlisted** | | |
| Public Health England (PHE) | Unified Infection Dataset (UID) Systems Development | Recent (within 3 years) and demonstrable experience of conducting the discovery phase relating to the use of digital solutions and technology, using data from large databases. | Texuna use Design thinking and Lean methods to ensure Discovery and subsequent phases are user-led and evidence-based. We use feedback to inform User Journey mapping and User Stories; multi-stage user research to empathise with real people, understand their goals, test how different personas respond to workflow and design that is inclusive and accessible. For Ofsted (in 2018) we iterated prototype screens based on user testing to highlight specific needs and issues while also testing accessibility for digital inclusion. Wireframes were tested with stakeholders and users via Axure and Balsamiq, with iterative prototypes built on GDS libraries with Swagger-based YAML stubs. | 99 | **Not shortlisted** | **Not provided** | **Poor response** |
| Public Health England (PHE) | Unified Infection Dataset (UID) Systems Development | Recent (within 3 years) and demonstrable experience of designing and implementing systems that perform data linkage between "Big Data" sources and working on data science projects. | Texuna are partners of Pentaho, owned by Hitachi Vantara with whom we have delivered several big data projects. In 2017-2018 Texuna helped Hitachi deliver 100TB data lake on Cloudera Hadoop nodes with Impala and Pentaho Spark connectors to generate customer segmentation insights for an insurance company (RGS). Texuna developed scalable, extensible architecture through the addition of new data sources, cleaning data, and allowing business to react quickly to changes in data flows or company acquisitions.
Texuna deployed live Big Data DWH within 4 months delivering to RGS their first data mart. The project was completed on time and within budget. | 100 | **Not shortlisted** | **Not provided** | **Good response** |
| Public Health England (PHE) | Unified Infection Dataset (UID) Systems Development | Recent (within 3 years) and demonstrable experience of applying the principles of user-centred design to the development of digital solutions for a range of users. | Texuna has worked with many public sector clients to create user centred design. Texuna delivered Ofsted Fostering Data Collection GDS compliant portal in 2018, which was conceptualised and delivered in-full within 5-months. We prototyped screens that were user-tested and changed prior to formal UAT. We interacted with sample user groups to determine specific needs and issues. We matched published GDS standards and best practices with design thinking and customer journey mapping. We received extremely positive feedback from local authority users and Ofsted staff for the final digital service experience. | 89 | **Not shortlisted** | **Not provided** | **Good response** |
| Public Health England (PHE) | Unified Infection Dataset (UID) Systems Development | Recent (within 3 years) and demonstrable experience of designing systems to manage personally identifying information under General Data Protection Regulations (GDPR). | Texuna recognise our GDPR obligations as a data processor holding data with personal information, and understand how to protect commercially sensitive and personal data. We have successfully completed many client audits and have a qualified Data Protection Officer. For projects that involve personal or personally sensitive data we work with the Project Owner to complete Data Protection Impact Assessment (DPIA).
We use this approach for DfE SecureAccess project. Solution provides a Single-Sign-On gateway to 11 systems, including the National Pupil Database. It identifies users, controls and protects personal data centrally to streamline GDPR processes and eliminate further personal data collection. | 100 | **Not shortlisted** | **Not provided** | **Good response** |

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	Recent (within 3 years) and demonstrable experience of designing systems able to work with high performance cluster computing.	For the NSS project we disseminate survey results to all universities on a highly optimised clustered cloud data warehouse to support live queries against 10's of millions of records This allows users to access and report on qualitative and quantitative data. Pre-packaged reports are standardised to allow downloads as single-click queries, while a real-time ad-hoc query service allows bespoke reporting across 50+ attributes. These tools are optimised to process records rapidly, and handle loads during peak times with over 1000+ daily requests, whilst ensuring anonymity of students. Texuna's tools are well received within the sector based on feedback conducted each year.	100	Not shortlisted	Not provided	Poor response
Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	Recent (within 3 years) experience of working with public sector organisations, particularly relating to public health and/or health care.	Texuna worked with PHE to deliver the EPIDOS patient record database containing 50+-year-old radiology epidemiology datasets. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, business process management and extensive input and output validation. Complex data feed manipulation via reprogrammable javascript functions provides flexibility to independently manage data feeds. Aggregated data reporting and data anonymisation for sharing are supported. The project was well received allowing extensible user control to interrogate the data.	92	Not shortlisted	Not provided	Good response
Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	Recent (within 3 years) experience of working with a range of users and stakeholders including scientific experts, technical and digital development team.	Texuna engage and communicate effectively with stakeholders, business, and public users across divisions. For Jisc data governance we conducted source system audit during the Discovery Phase to map the sources, locations, network details, infrastructure and platform stack. We worked with experts and stakeholders at all levels and roles across business units to create a common business language and ontology for data. We built a catalog of source systems and a data ownership framework, creating a RACI matrix and data supply contract template for the business to implement. This established the data governance team and led to a successfull project delivery.	100	Not shortlisted	Not provided	Good response
Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	Recent (within 3 years) experience of working with interdisciplinary and cross-disciplinary project teams including clinical and scientific project members.	Texuna engage and communicate effectively with stakeholders, business, public users across divisions. Good example: Jisc EDW project. We worked onsite to establish a new warehouse team, governance process and install an agile methodology. Experts and stakeholder engagement was key to the success of the change programme and depended upon full involvement of staff and customers. Texuna extended the in-house team to help develop internal competence and capability. Texuna are always mindful of people's contribution and deference to expertise, using visual problem-solving tools to arrive at a shared understanding of problems and solutions to reach desired outcomes.	96	Not shortlisted	Not provided	Poor response
Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	Recent (within 3 years) experience of exploring system architecture, hardware platform and open source software options to meet performance and scalability requirements.	Texuna are experienced open-source integrators who use the best-of-breed tools to create best value. We create flexible, vendor agnostic systems, always selecting the most appropriate tools for the task to provide flexibility for future growth. We reuse existing licensed products or introduce an open source alternative. Our project with the OfS (NSS) looked at us reviewing multiple architecture and open-source software options to improve additional scalability based on project needs. In the end, AWS was chosen and succesful migration from on-prem hosting to cloud-based hosting enabled scalbility and performance. Texuna have achieved 99.9% uptime on the Live environment.	98	Not shortlisted	Not provided	Poor response
Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	Recent (within 3 years) experience of advanced methods for data linkage such as machine learning.	Texuna has experience working with data linkage and machine learning technologies. We have recently incorporated machine learning as part of our automated testing suite for OBU based on supervised learning (regression testing). Our DfE projects, e.g. GIAS include YAML-defined API's to integrate with other department and third party services. When we migrate data, we build test straps using SQL-based sanity checks to assure integrity of migrated data. In addition, Texuna's staff have experience with machine learning algorthims (K-Means, SVM, and Decision Tree algorithms) which we consult upon depending on project needs and requirements specified.	93	Not shortlisted	Not provided	Poor response
Public Health England (PHE)	Unified Infection Dataset (UID) Systems Development	Recent (within 3 years) experience of working in a Linux environment.	Texuna staff and solutions work with a range of Linux OS depending on the task and stack in use, as well as customer needs. We use Ubuntu 16.04 LTS for almost all CI/CD and internal workloads like Jenkins, Gitlab, Ldap etc. We use Debian and Ubuntu servers without problems including major version upgrades. Client projects tend to use CentOS 7 given its similarity to RHEL 7. For AWS High Performance workloads we use optimised Amazon Linux 2 images (a clone of CentOS, rpm-based distro). Client Enterprise Data Warehouse Projects use AWS Linux or RHEL 7.	95	Not shortlisted	Not provided	Good response
Health Education England (HEE)	Data Collection Overview - Collection and Management	Data collections;Tools and software applications,Logistics and administration, Questionnaire design etc	Texuna has 18+ years data collection and management experience across education and financial services. Our first data collection (ITTDMS) is example of robust enterprise level database management solution that has grown and changed to meet changing government policy and data management demands. Originally a single annual data collection, ITTDMS has grown and manages more than 20 disparate datasets across more than 10 annual data collections, supporting 14 different user access portals. We focus on open source options for ETL (Talend, Pentaho) and big data (Hadoop, Impala, Spark). Whilst working with customers existing tools e.g. Alteryx, SurveyMonkey, Azure/AWS cloud services.	99	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Knowledge of Microsoft stack	Texuna have long standing relationships with the Public Sector where Microsoft tools are preferred. Our staff work with the Microsoft product suite, with considerable experience from work with the DfE. This includes SaaS data feeds such as Dynamics 365, as well as bespoke integration and the migrated legacy solutions from hosted environments to Azure cloud leveraging cloud services. A project highlighting this well is Get-Information-About-Schools (GIAS) for the DfE. This was an MS SQL server solution working with a .Net based front-end, which Texuna analysts delivered, and subsequently led a cloud migration to Azure.	93	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Office 365 online; SharePoint, PowerAutomate, Azure Logic apps, Forms etc	Texuna work with customers existing/preffered software stacks, cloud services and open source software. We create integration connectors between different sources and targets. Texuna migrates AWS services to and integrates with the DfE Azure environments (e.g. GIAS and Secure Access). At Jisc (EDW) we used API and ETL integration with Sharepoint, OneDrive, Exchange, SQLServer, Oracle, Salesforce, Elasticsearch, etc. At London Metropolitan and Oxford Brookes Universities we have also integrated with O365, Google, Dropbox etc. In addition, we proposed a micro-services architecture to make use of Azure Logic Apps for the re-build of a DfE legacy system.	95	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Cloud Hosting; Azure, AWS etc	Texuna is both a qualified AWS Consulting Partner and an experienced Azure practitioner. Texuna solutions are based on infrastructure-as-a-code to ensure cloud-agnostic, portable solutions. Our GIAS project was hosted originally as EduBase java application on dedicated in-house servers using Microsoft SQLServer since 2008. It was migrated to Postgres database and then moved to AWS cloud hosting in 2015. EduBase evolved to GIAS in 2017 and was migrated again to Azure hosting on the DfE standard environment. GIAS has been well received and Texuna is continuing with a new scope of work in 2019 as GIAS moves from Beta to Live.	100	Were invited in 2nd round	2 points (3 max)	

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Health Education England (HEE)	Data Collection Overview - Collection and Management	Networking	BSI has audited each of Texuna's offices individually over the last eight years for ISO/IEC 27001 compliance. Our architecture exceeds that of the UK-OFFICIAL classification guildlines produced independently by: * NCSC Cloud Security Principles * CIS Critical Security Controls. Texuna deployments include: * Modular Amazon VPC Multi Availability Zone architecture in London Region with separated and independently firewalled subnets on every tier * A secured bastion host to for troubleshooting/systems administration via SSH and centralise governance and security tools (monitoring/credentials/vulnerability/configuration management etc.) * Logging, monitoring, and alerts using configuration rules. * Full TLS v1.2 and v1.3 incorporating increased key strength	99	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Database Applications; incl SQL server, SSIS / data factory etc	We have heavily used SSIS on DfE projects notably ITTDMS. Texuna run ITTDMS since 2003, having been awarded the contract three times as it evolved into an EDW platform from a single collection. For any new datasets collected that the DfE needs integrating with the ITTDMS, Texuna utilised our extensive experience of data migration. For ITTDMS migration from the legacy system this was engineered in house based on the Microsoft DTS and SSIS tools. SSIS makes it difficult to create metadata-driven ETL and automated data pipelines, and limit work to deployment of SQL jobs to source or target systems.	99	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Web Application Development	Texuna deliver web-enabled solutions, an example is the NSS Dissemination Portal built for the OfS. The latest HTML5 and CSS3 coding languages were made use of, with a site built on top of the bootstrap framework. The portal enables users to login and access NSS data relating to their own institution. The site contains user management and link to the backend database using JQuery and PHP which allows users to create custom reports on the fly. Lastly, users can add comments and ideas to improve which feed directly to our dedicated service desk.	93	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Systems integration	Our projects demonstrate a deep understanding of solutions integrations, both acquiring and disseminating data, identity solutions, as well as integrating legacy services. For instance, DfE SecureAccess IDAM solution involved work with various DfE suppliers to integrate 11 different systems provided by various vendors using a range of technologies. Texuna integrated DfE's GIAS with UK's address look-up (OS Places API) and real-time GIAS data are shared with various systems, based on Microsoft Azure Service Bus. More recently Texuna's cloud-based data warehouse for Jisc integrated 140+ datastreams to support cross-service reporting. All work demonstrates integration of disparate sources to ensure project success.	100	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	DevOps	Texuna specialise in DevOps and pipelines. Texuna have architected and engineered full-stack enterprise solutions and operate substantial cloud-based DevOps infrastructure with Enterprise Data Warehouse and reproducible analytical pipelines (Jisc, OBU, LMU, OfS) and Hadoop-based big data for financial services. We deliver a Reproducible Analytical Pipeline with PDF markdown for each University's annual OfS National Student Survey (since 2014), automating sophisticated publications. For 18+ years with DfE/NCTL ITTDMS, Texuna designed and operated a repeatable, quality assured automated analytical pipeline to reproduce annual Performance Profiles, with dozens of other analysis datasets for different personas. Texuna experienced Dev/Ops staff (5+ years experience) are immediately available.	99	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Data validation; Online forms templates in Microsoft Excel	Texuna have built a number of data collection platforms that ingest a number of different formats including eForms, PDF scans and XML for data submissions. For Ofsted, Texuna delivered all steps in data submission: data collection, validation, immediate data quality reporting and sign-off. Local Authority, and Independent Fostering Agencies can make submissions in CSV, Excel, XML, and JSON. Each format is converted to a conformed data model; then validated against business rules. All data imported by users is parsed using ETL tool (Pentaho) which ensures all validations are configured correctly and can be easily updated over time, as required.	99	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	UI/UX design	Texuna work with Adhoc Global to deliver professional UXD services. We use Indeemo as a qualitative mobile ethnographic research platform to scale our understanding of UI/UX in the context of actual usage at the point of consumption to a wider remote audience. We get close to end users to appreciate their intention, interface interaction and build empathy with each persona. For OfS we disseminate the National Student Survey results to a large audience and run annual workshops with users to capture their feedback. We have designed transformative digital services on behalf of DfE such as ITTDMS, GIAS/Edubase and Secure Access.	100	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Product Evaluation	As a vendor-independent solutions provider, Texuna staff use their experience across a range of technologies to make key recommendations and decisions for projects. Project includes both very broad needs and very tight constraints. For instance, the Jisc EDW project married existing skills and tools (Tableau and SAP Business Objects), while also introducing new technology options adding value (Amazon Redshift and Pentaho). The GIAS project required analysis and recommendations of options considering the existing DfE Azure platform. Regular checkpoint meetings with stakeholders and independent reviews ensure that the best options are continually identified and maintained.	94	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Market Knowledge of Current Commercial Offerings	Texuna are experienced open-source integrators who use the best-of-breed tools to create best value. Texuna embrace, understand and implement GDS 18 Digital Service Standard principles. We create flexible, vendor agnostic systems, always selecting the most appropriate tools for the task to provide flexibility for future growth. We reuse existing licensed products or introduce an open source alternative. Our familiarity and use of framework libraries enables us to integrate existing open source into our development and delivery. We have a long history of code integration and firmly believe in reuse to delivery value-for-money and rapid prototyping and delivery to market.	99	Were invited in 2nd round	2 points (3 max)	

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Health Education England (HEE)	Data Collection Overview - Collection and Management	Public Sector Experience	Texuna have a strong 15+ year track record of successful delivery to the public sector, particularly the DfE and education sector. From Texuna's first service the NCTL(DfE now) Initial-Teacher-Training-Data-Management-Solution (ITTDMS) in 2003, to last year's OBU EDW, Texuna have constantly partnered and delivered with public bodies in the Education sector. Relevant partnership include: *National-Student-Survey (NSS) results dissemination for the Office for Students *Get-Information-About-Schools (GIAS) and Secure Access SSO for DfE *Itembank curriculum management solution for Standards and Testing Agency *Edukit - SIMS data collection and wellbeing survey for UK school pupils *Enterprice Data Warehouses for Jisc and several UK universities	98	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	NHS Experience	Texuna have experience of work with Healthcare organisations. We work with PHE to deliver EPIDOS patient record database containing 50+-year-old radiology epidemiology datasets. This project redesigned and built a National Registry for Radiation Workers (NRRW) and UK Nuclear Weapons Test Participants Study (NWTPS) databases and interfaces, providing full version control, audit trail, business process management and extensive input and output validation. Complex data feed manipulation via reprogrammable javascript functions provides flexibility to independently manage data feeds. Aggregated data reporting and data anonymisation for sharing are supported. Historically Texuna developed online EPR systems for PCTs and processed local authority MHMDS submissions.	100	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Healthcare Education and Training Experience	Texuna solutions are designed for use by diverse user communities. Training for Jisc involved working alongside the team on a daily basis with joint responsibility for delivery of releases. This was active mentoring for the Jisc staff at each project stage from requirements to testing. Experience with healthcare datasets, include: * EPR and patient records systems to Primary Care Trusts on N3. * With PHE and stakeholders, Texuna restructured data structures and migrated 50+years of epidemiology records. * For MSB/BUPA we configured Qliksense dashboards to analyse patient survey data including: Individual Analysis, Comparison, Sector Analysis, and Qualitative Analysis.	98	Were invited in 2nd round	2 points (3 max)	
Health Education England (HEE)	Data Collection Overview - Collection and Management	Higher Education Data/Commissioning Experience	Texuna have 18+ years delivering HE data and reporting solutions including: *DfE (since 2003) ITTDMS solution provides collection, validation and transformation of information from numerous data feeds. *OfS (since 2014) NSS we disseminate to all universities on highly optimised cloud DWH to support live queries against millions of records. However, anonymity of students is guaranteed. *OBU (since 2018) Data Futures compliant EDW, using data mining and predictive analytics, leveraging big/IoT data and giving insights into expected outcomes and needs for intervention. Texuna also work with HESA and OfS when dealing with higher education sector data on behalf of universities.	99	Were invited in 2nd round	2 points (3 max)	
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of providing services for designing and developing digital services using an agile approach	OfS contracted Texuna to create Data Collection portal to assist in automating the process for end-users and the Ofsted staff. Texuna committed to deliver GDS compliant, live, nationwide data collection portal within 5 months. We used agile delivery to build user empathy, created an effective user journey, and translated the required outcomes into portfolio backlog of Epics and User Stories. We assured timely delivery via 90-day Rolling Wave timeboxes with minimum resource availability. Weekly backlog grooming and agile prioritisation ensured critical success factors were always addressed first. The project was delivered on time and within budget, and received excellent feedback.	100			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of successfully meeting the GDS Service Standard.	Texuna staff have successfully delivered discovery/alpha/beta projects to the GDS digital service standards. OfS Fostering Data Collection is a strong example of leveraging GDS standards and guidelines successfully. GDS templates ensured the system's UI, look and feel, user journeys and architecture conformed to GDS allowing uncomplicated integration with other UK government systems. DfE's GIAS has taken a similar approach, with GDS reviews successful for public beta roll-out. Formal feedback has been extremely positive, with the service now delivering on new needs, leveraging principles and standards established, continuously pushing toa full live service.	91			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of providing services with outputs **from Discovery to Alpha**, Alpha to Beta Build and Public Beta to Live services to meet user needs and strategic objectives	Delivering OfS Fostering Collection started lean, building from paper touchpoints to Balsamiq wireframes and video composites to hi-fi interactive prototypes on InvisionApp as we learn and ideate hypotheses in Discovery and test assumptions in Alpha with user research. These outputs guided behaviour driven development (Selenium Webdriver) using Frontend toolkit to finalise the Alpha SinglePageApp prototypes to set early baselines for deployable code. We verified architecture assumptions, and delivered a prioritised backlog of User Stories at end of Alpha to baseline Beta build work. Once private Beta was optimised following stakeholder feedback, a public beta ensued, ready for GDS Service Assessment.	100			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of adhering to GOV.UK design patterns and standards.	Texuna used the open source code in the GOV.UK design system and Frontend toolkit libraries to deliver a number of projects. OfS Fostering Data Collection is responsive web application designed and implemented using the styles, patterns and components from the GOV.UK design system. We designed and deployed a cloud-based eDiscovery/eDisclosure solution for the Department of Finance (Ireland, 2018) with API-driven microservices accessed via SinglePageApp created mostly from GDS toolkit, components and patterns. We have applied the GOV.UK principles and designs in a number of other legacy projects including ItemBank for STA and ITTDMS for teacher training.	96			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of providing services to design and build cloud based web solutions and maintaining accessible web-pages based on user needs.	OfS Data Collection is responsive web-based application that went to Live in 2018. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. We partnered with our clients and their users to empathise and understand needs from 'their shoes', creating a user-centred design with journey outcomes. We tested paper designs, working prototypes and private beta deliveries with users. Sticking to GDS standards and reusing Frontend patterns and components ensured testing for Accessibility compliance was straightforward.	88			

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DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of providing Ruby and Ruby on Rails, PostgreSQL, **Redis**, Elasticsearch, JavaScript and Docker capabilities and associated framework	Our team includes full-stack polyglot programmers that deliver predominantly Java and Javascript. We use Ruby extensively (e.g. Watir for automating tests) and build internal productivity tools using Ruby. At Jisc Digital Resources we use Elasticsearch on logstash over a heterogeneous portfolio of bespoke digital content services with anonymised, session page-level collection to calculate usage statistics. Texuna's eDisclosure service uses independently scalable microservices in Docker files. We turned to Kubernetes to manage orchestration given Docker's limitations. We use SQLServer, MySql, PostgreSQL and MongoDB and cloud equivalents, relying heavily on Postgres for our data pipeline projects at Jisc and OBU.	98			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of providing services with a test driven development, continuous integration and delivery approach.	Texuna use test-driven development using artefacts from the very beginning of projects to set early baselines for deployable code. We automatically run regression testing against all commits that are integrated and pushed to release - over thousands of tests per project. This happens from first commits and with test version control through GIT (unit and integration tests are included in the test suite). We extended our framework using PyTest and Allure to capture and quality-check data-driven projects. We rigorously control code and data through continuous deployment to find problems early. Lessons learned from bug tickets are incorporated into automated tests.	100			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of building using Microsoft Azure and GOV.UK PaaS cloud platforms.	Texuna already operate within DfE Azure environment, complying with GOV.UK principles and designs. Our track record includes delivering infrastructure as code through Terraform and Ansible in several projects: Secure Access - Identity and Access Management provided Single Sign-On access to 11 systems, migrated from in-house VMWare stack to Azure. Get Information About Schools (GIAS) - canonical list of schools in England. The EduBase in-house java application was moved to AWS before being refactored and deployed to Azure with GIAS. Texuna also successfully delivered Initial Teacher Training Database Management system (ITTDMS) and Item Bank system for STA to Azure.	98			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of building using C#.	Texuna mostly works with freelancers to deliver C# projects. For example, Texuna work with startups including Shout App in Manchester. In order to deliver a single codebase of reusable and portable source code the Shout-app team use C# extensively for its app frontend. Texuna has provided architectural guidance and collaborate with Shout-app on technical Azure and C# coding issues, using local freelance programmers to add expertise. Texuna has also worked with OliveJar on the GIAS architecture using the Miscrosoft stack, and at Jisc Texuna worked with heterogeneous software stacks including Active Directory, .Net, and Azure.	95			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of providing services to lead, coach and upskill people in agile methods and techniques in order to build internal capability.	Texuna act as extension of the in-house client team helping to build internal competence and capability. During the Jisc and Dell projects, Texuna used a series of workshops and written guidance to facilitate the upskilling of project staff at large scale. The notion of "Train the Trainer" approach was taken, in which a member of staff is upskilled, and could continue upskilling additional staff internally. Similarly Texuna provided ad hoc agile coaching and Technology Architecture servcices to OfS project team at the Discovery phase of their recent initiatives in 2019.	90			
DfE	Software Development Capability - Package 2 (Trainee Teacher Recruitment)	Detail recent experience of analysis of existing research, analytics and insight to ensure good understanding of users and their needs	Texuna's Business Analysts and User Researchers focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. We also investigate historic audit trails (e.g. weblogs) for past usage behaviours to establish new hypothesis for testing. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements e.g. Jisc and University data warehouses. We also leverage retrospectives on projects like Ofsted and DfE GIAS to generalise lessons learned about what user experience, design and content really helps users to achieve their desired outcomes.	96			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of providing services for designing and developing digital services using an agile approach	OfS contracted Texuna to create Data Collection portal to assist in automating the process for end-users and the Ofsted staff. Texuna committed to deliver GDS compliant, live, nationwide data collection portal within 5 months. We used agile delivery to build user empathy, created an effective user journey, and translated the required outcomes into portfolio backlog of Epics and User Stories. We assured timely delivery via 90-day Rolling Wave timeboxes with minimum resource availability. Weekly backlog grooming and agile prioritisation ensured critical success factors were always addressed first. The project was delivered on time and within budget, and received excellent feedback.	100			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of successfully meeting the GDS Service Standard.	Texuna staff have successfully delivered discovery/alpha/beta projects to the GDS digital service standards. OfS Fostering Data Collection is a strong example of leveraging GDS standards and guidelines successfully. GDS templates ensured the system's UI, look and feel, user journeys and architecture conformed to GDS allowing uncomplicated integration with other UK government systems. DfE's GIAS has taken a similar approach, with GDS reviews successful for public beta roll-out. Formal feedback has been extremely positive, with the service now delivering on new needs, leveraging principles and standards established, continuously pushing toa full live service.	91			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of providing services that have taken outputs from Alpha to Beta Build and Public Beta to Live services to meet user needs and strategic objectives	Ofsted contracted Texuna to pickup alpha prototypes and deliver a working fostering portal to automate the data collection process and eliminate significant manual effort of users and staff. The Fostering Data Collection App passed into a public beta launch in May 2018. Texuna delivered solution that focused on user needs and outcomes. We reused available GDS Single Page App design patterns and followed standards throughout user-centered agile sprints and iterative delivery reviews with internal stakeholders and external endusers. We introduced communication channel automation between Ofsted and Fostering agencies, helping Ofsted meet strategic objectives as confirmed by written feedback.	98			

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of adhering to GOV.UK design patterns and standards.	Texuna used the open source code in the GOV.UK design system and Frontend toolkit libraries to deliver a number of projects. OfS Fostering Data Collection is responsive web application designed and implemented using the styles, patterns and components from the GOV.UK design system. We designed and deployed a cloud-based eDiscovery/eDisclosure solution for the Department of Finance (Ireland, 2018) with API-driven microservices accessed via SinglePageApp created mostly from GDS toolkit, components and patterns. We have applied the GOV.UK principles and designs in a number of other legacy projects including ItemBank for STA and ITTDMS for teacher training.	96			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of providing services to design and build cloud based web solutions and maintaining accessible web-pages based on user needs.	OfS Data Collection is responsive web-based application that went to Live in 2018. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. We partnered with our clients and their users to empathise and understand needs from 'their shoes', creating a user-centred design with journey outcomes. We tested paper designs, working prototypes and private beta deliveries with users. Sticking to GDS standards and reusing Frontend patterns and components ensured testing for Accessibility compliance was straightforward.	88			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of providing Ruby and Ruby on Rails, PostgreSQL, **Redis**, Elasticsearch, JavaScript and Docker capabilities and associated framework	Our team includes full-stack polyglot programmers that deliver predominantly Java and Javascript. We use Ruby extensively (e.g. Watir for automating tests) and build internal productivity tools using Ruby. At Jisc Digital Resources we use Elasticsearch on logstash over a heterogeneous portfolio of bespoke digital content services with anonymised, session page-level collection to calculate usage statistics. Texuna's eDisclosure service uses independently scalable microservices in Docker files. We turned to Kubernetes to manage orchestration given Docker's limitations. We use SQLServer, MySql, PostgreSQL and MongoDB and cloud equivalents, relying heavily on Postgres for our data pipeline projects at Jisc and OBU.	98			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of providing services with a test driven development, continuous integration and delivery approach.	Texuna use test-driven development using artefacts from the very beginning of projects to set early baselines for deployable code. We automatically run regression testing against all commits that are integrated and pushed to release - over thousands of tests per project. This happens from first commits and with test version control through GIT (unit and integration tests are included in the test suite). We extended our framework using PyTest and Allure to capture and quality-check data-driven projects. We rigorously control code and data through continuous deployment to find problems early. Lessons learned from bug tickets are incorporated into automated tests.	100			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of building using Microsoft Azure and GOV.UK PaaS cloud platforms.	Texuna already operate within DfE Azure environment, complying with GOV.UK principles and designs. Our track record includes delivering infrastructure as code through Terraform and Ansible in several projects: Secure Access - Identity and Access Management provided Single Sign-On access to 11 systems, migrated from in-house VMWare stack to Azure. Get Information About Schools (GIAS) - canonical list of schools in England. The EduBase in-house java application was moved to AWS before being refactored and deployed to Azure with GIAS. Texuna also successfully delivered Initial Teacher Training Database Management system (ITTDMS) and Item Bank system for STA to Azure.	98			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of building using C#.	Texuna mostly works with freelancers to deliver C# projects. For example, Texuna work with startups including Shout App in Manchester. In order to deliver a single codebase of reusable and portable source code the Shout-app team use C# extensively for its app frontend. Texuna has provided architectural guidance and collaborate with Shout-app on technical Azure and C# coding issues, using local freelance programmers to add expertise. Texuna has also worked with OliveJar on the GIAS architecture using the Miscrosoft stack, and at Jisc Texuna worked with heterogeneous software stacks including Active Directory, .Net, and Azure.	95			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of providing services to lead, coach and upskill people in agile methods and techniques in order to build internal capability.	Texuna act as extension of the in-house client team helping to build internal competence and capability. During the Jisc and Dell projects, Texuna used a series of workshops and written guidance to facilitate the upskilling of project staff at large scale. The notion of "Train the Trainer" approach was taken, in which a member of staff is upskilled, and could continue upskilling additional staff internally. Similarly Texuna provided ad hoc agile coaching and Technology Architecture servcices to OfS project team at the Discovery phase of their recent initiatives in 2019.	90			
DfE	Software Development Capability – Package 3 (Teaching Vacancies & International Teacher Recruitment)	Detail recent experience of analysis of existing research, analytics and insight to ensure good understanding of users and their needs	Texuna's Business Analysts and User Researchers focus on collecting and analysing pre-existing artefacts from top-down user research before engaging users directly with visual techniques in workshops and interviews. We also investigate historic audit trails (e.g. weblogs) for past usage behaviours to establish new hypothesis for testing. Texuna's bottom-up data and report analysis is fundamental for understanding data integration and analytics requirements e.g. Jisc and University data warehouses. We also leverage retrospectives on projects like Ofsted and DfE GIAS to generalise lessons learned about what user experience, design and content really helps users to achieve their desired outcomes.	96			

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&Dev Ops	Detail recent experience of providing services to support planning, creating, managing and operating a cloud infrastructure, with particular reference to Azure.	Texuna already operate within the DfE Azure environment. Our solutions are based on infrastructure-as-a-code to ensure cloud-agnostic, portable solutions. We migrated GIAS backend from AWS to Azure environment and continue to maintain it on Azure. We use Azure tools to ensure CI/CD to automatically manage operations alongside DfE partners OliveJar. We provide robust automation to minimise maintenance and harden live services against unplanned Microsoft patching activities and unexpected Redis cache disconnections. We ensure Azure security and integrity through virtual private cloud configuration, using sophisticated encryption to protect data at-rest and in-transit and configuring robust backup and Disaster Recovery processes.	99			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&Dev Ops	Detail recent experience of providing services for the development, Technical Architecture and DevOps of agile projects using both open-source languages and tools, and the .Net stack.	Texuna has worked with OliveJar on the GIAS architecture which used a combination of open source technologies, Miscrosoft stack and APIs. At Jisc enterprise data warehouse Texuna worked with heterogeneous software stacks Active Directory, .Net, Drupal, Terraform, Java, AWS & Azure, alongside proprietary vendor software such as Tableau. Texuna also support startups including Shout App in Manchester with a C sharp portable app code base on NoSQL Mongo. For Dept Finance in Ireland and Edukit in UK Texuna use docker containers, message queues and ETL to manage workloads for structured and unstructured data collection and analytics.	96			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&Dev Ops	Detail recent experience of providing services in operational automation, including YAML, script development and maintenance using PowerShell, bash, or similar.	For GIAS we developed API messaging standards via YAML and Swagger for front-to-back integration services. We delivered value for money while engineering for automation, ease of management, growth and change. Texuna use Bash and Ansible to configure internal software server parameters, and Terraform to automate Azure and AWS infrastructure. At Jisc we automate the entire enterprise data warehouse through infrastructure as code. Over 2+ years on GIAS we introduced performance and monitoring improvements with automated restarts to assure better system behaviour. Texuna are currently enhancing the GIAS API system through a clustered architecture to increase availability and resilience.	98			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&Dev Ops	Detail recent experience of providing services to support a Continuous Delivery approach to software development, including examples of tooling for pipelines, build automation, and test execution and reporting.	We work with DfE to host GIAS, using continuous integration and continuous deployment to Azure to automatically manage operations together with other GDS suppliers. Our CI/CD is based on: * GIT for version control * Jenkins CI for dependency management, package preparation and delivery * Junit for unit testing and Allure for automated regression testing * Ansible and Terraform for provisioning and deployment. Texuna use continuous automatic testing of ETL transformations for data projects. The framework simplifies test development, testing each data stream separately to cut testing time through automated regression reports. It uses PyTest and Allure.	97			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&Dev Ops	Detail recent experience of providing services to support cloud infrastructure and networking, with particular reference to Azure.	Texuna has migrated several public sector solutions and legacy systems to Azure as a public cloud, with configurations to manage multiple environments and implement continuous deployment in a secure and quality assured way. With the launch of the rebranded GIAS service the whole project was moved to the DfE Azure public cloud. We implemented using the Azure PaaS capability to managed the infrastructure for backups, restore, load testing and other security and performance concerns. These reamin under Texuna DevOps team. Similarly we migrated legacy systems to Azure for DfE Secure Access, STA ItemBank, and NCTL ITTDMS without hiccup.	98			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&Dev Ops	Detail recent experience of providing services to build, support and manage containerised applications using Docker.	Texuna created an eDisclosure service in the last 12 months, which was delivered to the Irish government (Dept. of Finance) and designed to handle 100+TB of data. The service is composed of a collection of independently scalable microservices contained in Docker files. We hit the limitations of Docker and switched to Kubernetes to manage orchestration. We used AWS ECS for simplicity of management on cloud deployments. To make the service portable for the government installation, we tested deployments with Minio (to replace S3 object storage) and Rabbit MQ. Since this project Texuna have started to containerise other project work.	99			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&Dev Ops	Detail recent experience of providing services in Technical Architecture, including high level system design, technical project management, and providing engineering-focused oversight.	Texuna have modeled high-level architecture for several customers in the last few years for large-scale EDW projects. This includes a greenfield project with Jisc to integrate data across 3 independent business units, across 120+ services to its members (HE, FE and other institutions) and an estate of dozens of legacy systems. We delivered on organisation-wide opportunities motivating each business unit towards new business processes whilst respecting and leveraging what was already available. We delivered a star schema with support for Type2 Slowly Changing Dimensions. We automated pipeline metadata delivery to a wiki to track data lineage and report calculations.	99			

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&DevOps	Detail recent experience of providing services to perform maintenance releases of Microsoft OS, VMware and PowerShell.	Texuna have considerable experience from work with the DfE. This includes SaaS data feeds such as Dynamics 365, as well as bespoke integration and the migrated legacy solutions from hosted environments to Azure cloud leveraging cloud services (e.g. STA ItemBank, NCTL ITTDMS). A project highlighting this well is GIAS based on MS SQL Server. This legacy Edubase service was migrated to Azure and wrapped with new API's to feed an update frontend Single Page App and cloud infrastructure. Similarly Texuna ran the DfE SecureAccess application cluster, originally virtualised on VMWare within Eduserv cloud, before migrating it seamlessly to AWS.	99			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&DevOps	Describe your approach to working with multidisciplinary, mixed civil servant and managed service teams of specialists working to common service outcomes	Texuna work in the public sector with teams from other suppliers with an agile, interactive, shared development methodology with visual tools and workgroup techniques. Texuna work with multiple collaborative tools and development workflows including Visual Studio, Pivotal Tracker and Slack. We use daily standups and scrums to collaborate across teams and locations and we do 'show me, don't tell me' presentations to get regular sprint feedback and lessons-learned retrospectives. We spend face time with our collaborators and get to know them. We work online and remotely when useful, and spend as much time on site with our partners where possible.	100			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&DevOps	Detail recent experience of shaping and managing the policies, processes and procedures for effective service management, including an understanding of service lifecycle.	Texuna staff have significant experience working with DfE, Ofsted, STA and private customers to re-imagine services and manage the change required to bring new solutions to fruition. For the OfS Fostering data collection service Texuna managed the full service lifecycle from Discovery through Alpha, Beta and current operations. With the OfS National Student Survey Texuna work with Ipsos Mori to plan and deliver the largest student survey and publication in the world. Texuna support policy and procedure rigour as evidenced by our ISO27001(Information Security), 9001(Quality) and 20001 (Service Management) standards which are audited and certified independengtly by BSI.	97			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&DevOps	Detail recent experience of logging and monitoring tools, including the ELK stack.	Texuna centrally stream logs to simplify server management, using a variety of tools from cloud services to Zabbix. For example, our IAM solutions are configured to send access and account change logs to SIEM products. We support various integration approaches like Slunk or ELK-based (ElasticSearch-Logstash-Kibana) systems. It includes logs streaming or REST API event sumbission. At Jisc Texuna use the ELK stack to collect data for the enterprise data warehouse to generate insights on the Open Access publisher data and on usage of Jisc services like Historical Texts and Journal Archives.	91			
DfE	Software Development Capability Package 4 - Trainee Teacher Recruitment, Technical Architect&DevOps	Detail recent experience of building and using open source software.	Texuna are experienced open-source integrators who use the best-of-breed libraries and tools to create best value. Our project with the OfS (NSS) looked at us reviewing multiple architecture and open-source software options to improve additional scalability based on project needs. We introduced customisations to the Pentaho Spoon to enable business logic and transformation packages to be uploaded to a cloud-based workfly. As a Hitachi Pentaho (OSS) partner Texuna have contributed to many bug fixes. For Jisc, we published open sourced plugins for Redmine OSS to increase expansion to Pivotal Tracker. Our eDiscovery heavily uses GDS Frontend Toolkit and Solr.	99			
DfE	Digital Transformation Pipeline (Region: South)	Delivering digital services using agile development approaches and continuous delivery techniques	Texuna have delivered 20+ DfE GIAS sprints using Agile methodologies with DfE and another supplier. We work together via daily standups, bi-weekly sprints with show/tell retrospectives, mapping out the user journey and translating into a backlog of User Stories. We use sprint ceremonies including demonstration, backlog grooming and agile prioritisation. Continuous Integration and Continuous Delivery is done via Visual Studio, Team Services CI/CD and Azure cloud services, with automated unit testing and deployment. GIAS has been well received with new scope of work agreed as GIAS moves from Beta to Live.	91	Not shortlisted	2 points (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Experience in conducting user research, designing and developing working digital services	At Jisc and at OfS, Texuna have used visual, design-thinking techniques within lean startup style workshops with stakeholders and proxy users. We generate personas, user journeys, service touchpoints and develop key hypotheses to test. Researchers translate paper models to low-fi Balsamiq and video composite wireframes to generate alternatives. We prototype hi-fi design mockups with the GDS SPA Design toolkit to generate working prototypes with API stubs that we iterate through sprint reviews with users. Our researchers have also done qualitative mobile ethnography using Indeemo to remotely observe authentic UI/UX behaviours during actual usage.	93	Not shortlisted	2 points (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Experience in user journey mapping, delivering evidenced based, prioritised user stories and designing assisted digital support	Texuna partner with Ad Hoc Global user researchers to help us generate authentic feedback to inform User Journey mapping and develop User Stories. Our joint team collaborate with with the service designer to work with real people, understand their goals, test how different personas respond to workflow and design. For example on Ofsted we iterated prototype screens based on user testing to highlight specific needs and issues while also testing accessibility for digital inclusion using GDS guidance and test tools. Wireframes are road-tested on Axure or Balsamiq and we prototype on existing GDS libraries to simplify compliance.	97	Not shortlisted	2 points (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Experience of successful collaborative working, coaching and sharing knowledge with clients, particularly those with limited agile development experience	We worked with Jisc to introduce EDW and through that project we trained Jisc staff. This involved working alongside the Jisc team on a daily basis with joint responsibility for delivery of many releases. We provided active coaching and mentoring at each stage of the development cycle from requirements, testing, deployment and operation. Joint code reviews and sprint retrospectives helped facilitate knowledge sharing. We identified and allocated team roles with Texuna shadows, established shared agile terminology, created pragmatic processes, and shared agile management tools to synchronise everyone in daily standups, regular sprints, reviews and retrospectives.	95	Not shortlisted	2 points (3 max)	

Source	Solution	Question	Template Response	Word count:	Shortlisted?	Score	Comments to the Score
DfE	Digital Transformation Pipeline (Region: South)	Delivering end-to-end services across a range channels	Texuna's legacy over the last 20 years includes designing, building and operating end-to-end multi-channel digital services for many public sector bodies. This includes the original DfE Secure Access SSO service (including helpdesk) as well as operating the NCTL ITTDMS collection for 13 years. This included organising annual collections, designing correspondence and liaising with the sector on future changes and working with HESA to move to in-year collections and other service transformations and innovations over time. Texuna managed everythign from logins, collection support and automated task management, reminder communication workflows, paper and digital signature documents and annual report publicatons and analyses.	100	Not shortlisted	1 point (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Delivering for complex and evolving operating environment	Texuna delivered ongoing change with DfE for example on the Secure Access and on the EduBase projects. Originally deployed on dedicated in-house servers using Microsoft SQLServer since 2008, Edubase was migrated to AWS in 2015, before being extensively refactored with GIAS in 2017 and then being migrated to DfE standard environment where we now maintain it on Azure. Secure Access started off inhouse as a SSO linux cluster integrated with a small number of services (SAML and Shibboleth) before being migrated to Eduserv on VMWare, and subsequently onto AWS for a much larger number of service with bespoke integrations.	99	Not shortlisted	1 point (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Delivering in complex supply and delivery chains	Texuna have worked widely and extensively with the education and social sector over the last 15 years (trainees, teachers, schools, universities, WBL, ACL, fostering, LAs, Sector Skills Councils etc.) through ongoing and historic engagements including NCTL ITTDMS data collection & publication management, LLUK collections and publications, DfE Edubase helpdesk operations, OfS Fostering Collection, National Student Survey annual publications. We have built a multidisciplinary team and knowhow that understands public sector digital services from innovation planning through transformation, training and delivery. We deeply understand security, privacy, usability, service design, systems integration and data governance in the UK education sector.	98	Not shortlisted	1 point (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Prioritises understanding needs and behaviour and uses insight to underpin and drive design decisions when designing content, product and services	Texuna's history is about automating digital service delivery for DfE and non-departmental clients. We developed and continuously improved holistic service design to deliver services with high quality assurance at low cost. We used workflows and task automation around consistent repetitive tasks and patterns that users could easily understand. We developed context-specific communication strategies and collateral to remove burden from the users and from the service support staff. We used annual planning sessions and worked with usergroups to consider feedback on suggested optimisations, and used actual data from service support levels to help prioritise features that deliver the widest impact.	99	Not shortlisted	1 point (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Communicate service concepts and ideas using methods that allow others to see all the different parts of a service	Texuna team foster a visual communication style based on a philosophy that "if you can't draw it, you don't understand it". We base stakeholder engagement on visual, design-thinking visualisation techniques to focus on empathy-building and shared understanding. We aim visual explanations so they are understood by all levels of the business, and develop them through people-focused workshops, user research, surveys and written communications. We also use a "show me, don't tell" philosophy" to test that intended meaning is transferred. Texuna also partner with Adhoc Global for IA, UXD and additional content expertise.	92	Not shortlisted	1 point (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Pulling together aspects such as user research, org design, business analysis, data science, policy intent	Texuna uses a multidisciplinary team to combine avaialble evidence to inform next steps. We collect and analyse pre-existing artefacts from top-down stakeholder input and bottom-up historical data, logs etc. before re-engaging and challenging assumptions during further interviews. We follow the data audit trail of past usage behaviours to generate new hypotheses - which often tells a different story that needs to be tested. For data integration pipelines, insights and analytics the top-down, bottom-up analysis combined with independent sector models is fundamental - we use this for data warehousing projects at Jisc and Oxford Brooks University.	95	Not shortlisted	1 point (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Analysing failure within a service and identifying root causes	Texuna work with multi-supplier groups in Jisc / OBU data warehousing projects and with DfE Secure Access integrations etc and rely on rigourous audit trail event logging to facilitate root cause investigations, using the "5 Why's" technique to look for root cause, corrective actions and preventative actions. Texuna develop typical edge cases and potential failure scenarios throughout a defined lifecycle and transition points between systems, people and organisational boundaries. This helps identify weaknesses or omissions that may need protections (e.g. privacy-by-design). We use legacy data, event logs, anecdotal problems and unusual behaviours to understand potential failure modes.	97	Not shortlisted	1 point (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Designs and develops services through iteration, research and testing	Texuna's project life cycle is modeled around Test-Driven-Development and Agile methodology. This provides process of constant testing and rebuilding within iterative development sprints. This also allows the company to implement constant quality control regime. Our projects are successful because we engage end-users directly and implement changes iteratively based on their feedback and stated business needs.

For Fostering Data Collection we completed public Beta within 120 days, going from paper ideas to production-ready code through ongoing sprint "show-and-tell" with feedback between developers, users and stakeholders. We used Balsamiq and InvisionApp to transform wireframe alternatives into realistic UI designs for App development. | 100 | Not shortlisted | 2 points (3 max) | |
DfE	Digital Transformation Pipeline (Region: South)	Evidence of your ability and approach to deploy multiple resources at customer locations, specifically in the South East	Texuna has a long track record of working in partnership with our clients to ensure that together, co-locating to customer sites as needs dictate. Texuna are already connected to DfE environments which helps ensure quick kickoff and minimal disruption booking physical space, workstation/laptop access, domain access etc. Texuna historically operate from London and often colocate onsite with customers in other regions. For example we put a rotating team of up to 8 individuals at Jisc continuously for over 18 months to deliver an enterprise data warehouse. Texuna will locate staff in Coventry or Cambridge as necessary.	96	Not shortlisted	2 points (3 max)	
DfE	Digital Transformation Pipeline (Region: South)	Experience of working successfully with UK Government and/or Arms Length Bodies	Texuna have a strong 15+ year track record of successful delivery to the public sector, particularly the DfE. From Texuna's first service ITTDMS from 2003-2016, to last year's OBU EDW, Texuna have constantly partnered and delivered with public bodies. We delivered DfE IAM Single Sign-On solution - 'Secure Access'. The solution was configured, deployed and integrated with a number of legacy DfE systems based on differing technology. Texuna delivered the Ofsted Fostering Data Collection web-application, which was conceptualised and delivered in-full within 5-months. Texuna also deliver with STA Item Bank and OfS National Student Survey publication.	96	Not shortlisted	Nice-to-have skills or experience	
DfE	Digital Transformation Pipeline (Region: South)	Planning and delivering digital services that follow the Government Service Standards	Texuna have successfully delivered discovery/alpha/beta projects to the GDS standards. Ofsted Fostering Data Collection is a strong example of leveraging GDS standards and guidelines successfully. GDS templates ensured the system's UI, look and feel, user journeys and architecture conformed to GDS allowing uncomplicated integration with other UK government systems. Ofsted "Setting Goals" workshops engaged users with "show-me don't tell-me" sessions to empathise with their methods and motivations, and test our assumptions. Texuna used 100% user-centered, sprint-based prototypes to successive deliveries. We captured and measured "evidenced" user feedback on demos following interactions of rapid prototyping. Written feedback was very positive.	99	Not shortlisted	Nice-to-have skills or experience	

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DfE	Digital Transformation Pipeline (Region: South)	Awareness of GDS service assessments	Texuna have integrated services and built solutions following GDS standards and guidelines to the required level of usability and accessibility for many DfE projects. Our DfE GIAS work successfully passed several GDS reviews, external penetration testing, risk and security assessments in the last 2 years. EduBase2 is now refactored with RestAPIs for GIAS and waiting GDS Live assessment. Similarly we had successful approval to operate cloud portable Secure Access for many years on Eduserv and subsequently on AWS. We also delivered Ofsted Fostering Data Collection in 2017-2018 using the agile methodology subject to the GDS Service Standard.	97	Not shortlisted	Nice-to-have skills or experience	
DfE	Digital Transformation Pipeline (Region: South)	Sector knowledge of DfE business requirements and issues	Texuna sector and DfE knowhow comes from 15 years of sector engagement. We work with the DfE since 2008 on Edubase/GIAS/Secure Access and their respective cloud and GDS journeys. Texuna have directly assisted DfE, Ofsted Fostering, OfS NSS, STA ItemBank to implement policy changes over 15 years. ITTDMS is an example of a robust enterprise level digital service that evolved over 13 years to meet changing policy and data management demands of NCTL, growing from a single annual data collection to more than 20 disparate datasets across 10+ annual collections, supporting 14 different user access portals.	96	Not shortlisted	Nice-to-have skills or experience	

[1] Supporting References: SAML 2.0, OpenID

[2] Supporting References: Annex i 4.1 Self-Referral

[3] Supporting References: ISO 27001:2013; Please see Annex ii on Security Compliance

[4] Supporting References: https://data.gov.uk/education-standards/

[5] Supporting References: https://www.gov.uk/government/publications/open-standards-principles/open-standards-principles

[6] Supporting References: ITIL http://www.itil-officialsite.com

[7] ii) Service Architecture
Story: A Department staff member launches a new Enterprise application, "Maps", which reads data from several other independent Department systems.
Journey:
* The staff member, UserA, opens the Single Sign On portal and logs in
* A menu of applications that UserA has been approved to access are presented, including "Maps", "Payment Service" and several others.
* Opening "Maps" and entering a business customer number, UserA is presented with a screen containing several panes and header information: the header data is fetched from a RESTfull call to "Customer System"; on the right of the screen, a pane presents data that is aggregated from a RESTful call to the "Payment service" which in turn has called a "Claims service".
* The RESTful call for customer data passes credentials to the Customer system, it checks the credentials and authorisations are valid, writes a log entry that UserA accessed this business customer data, and the returns the requested data.
* The Payment service call likewise operates, however, on calling the Claims service, and checking credentials and authorisation, UserA has no access to Claims data for this business customer; an appropriate message is returned to Maps and data for the right pane is not displayed.
* UserA logs out of "Maps"; they are returned to the menu of applications provided by the SSO portal.

[8] i) Mobile application
Story: A farmer, who has previously used Department Desktop based systems, wishes to log in to a new mobile app and register an animal.
Journey:
* The farmer has online connectivity and downloads the mobile app required to register an animal from the public app store and opens it for the first time
* The farmer is prompted to enter credentials that will authorise access to the relevant Department system (as previously configured for that farmer on the existing "SSO" system)
* Once validated, the farmer is invited to set a four digit PIN on the mobile application. The mobile application completes background tasks, connecting to the Department network and downloading data relevant to the farmer (per the farmer's authorisation status).
* The farmer reviews data received and closes the app, leaving online connectivity to visit the animal pen.
* The farmer re-opens the app whilst offline, enters new data, and when complete closes the app
* At some later stage, the farmer re-enters online connectivity, opens the app and selects to upload the new data. The farmer enters the application level four digit PIN set on the phone but is not required to enter Department credentials again.
* After some, server side, customisable period (e.g. 90 days), the farmer may be required to re-enter credentials again to continue to receive data

or upload new data.
* Whilst logging in to Department systems on a Desktop, the farmer inadvertently locks their account; the mobile app continues to work in offline mode however the next attempt to upload data from the mobile fails due to a locked account.
* The farmer uses the IAM solution's account self-service option to unlock the account and continue operation of the mobile application.

[9] Subsuming the functions of Mode 1 authorisation will then form phase 3 of IAM implementation. Opportunities to enhance SSO functionality, or improve performance, if present, should be noted in the response as "added value". Significantly, as previously noted, the core monolithic applications must continue to provide day to day functions for customers that are crucial to the Department's business.