

Providing an Open Digital Service using the Jadu platform

Jadu would deliver a solution for the scenario using Jadu Content Management System (CMS) with additional bespoke development, to create a website, datastore and associated API.

Discovery - Understanding data-user needs

Jadu would undertake interviews and work-shadowing with key stakeholders identified by the client, to gather information on their system requirements. Where appropriate, market research, surveys and focus groups would also be undertaken and if available, we would look at any analytics data provided by the client, or similar systems to that proposed, as part of our requirements gathering process. User personas would be created from the data gathered.

Jadu follow an agile methodology for software development. Therefore, once this period of discovery / requirements gathering was complete, together with the client, Jadu would create a backlog of user stories that capture the 'who', 'what' and 'why' of each requirement of the proposed system along with success criteria to ensure that the solution meets that requirement. By focusing on user stories, rather than a formalised requirements document, we can respond faster and with less overhead to changing requirements during development. As working software is delivered at the end of each sprint period, a beta release or user testing period could be included to further refine or re-prioritise user stories as the project progressed, at the client's discretion.

Data processing

Jadu provide an intuitive web administration interface that enables the client to import and update their data. Data, including its metadata can be edited directly via the web interface, as well as in the source import document. Jadu CMS has a permission system to control who can make changes to data held in the system, and also tracks which user has made a change.

For the scenario described, Jadu would use a GUI automation tool to automate the process of importing data provided in proprietary formats, such as Microsoft Word or Excel documents, and exporting it into open formats. The open format files would be uploaded to the system to be provided to users as raw data.

We would parse the reference data documents to extract the accessible useful data and populate Jadu Directories. Following the first automated import, the data would be checked manually to ensure quality. Automated tests could then be used to check data quality on an on-going basis. The import tools would be delivered with the solution to allow the client to maintain the data.

Where data was provided in an external database that was not on a public server, we would either complete a one-off import or set up an automated task to import a CSV export of that data into the Jadu database at regular intervals, depending on the nature of the data and whether it would change over time.

Data exploration

Out of the box, Jadu CMS provides a directory builder to display structured data in a browsable web directory, with a REST API. Users do not need to download the data to view it, but links to download the full dataset can be provided. Directories include taxonomy-based navigation, keyword search and an A to

Z to make it easy to explore the data held within the system. Geospatial data held within a directory can be displayed on a map. Directories can be categorised according to the site's custom taxonomy. Multiple categories can be applied to a directory, and related directories can be viewed using the web interface and API.

Almost 30% of Local Government in the UK is using the Jadu CMS, and making use of directories to publish data sets. Example Jadu CMS directories currently in use:

<http://edinburgh.gov.uk/directories>

<http://manchester.gov.uk/directories>

<http://www.wandsworth.gov.uk/acis>

The Jadu CMS also provides tools to surface data from its database in web pages built from modular components of functionality referred to as 'widgets'. These pages are flexible and non-technical to build, and a template would be developed by the team's user experience designer during the project. Widgets for embedding text and images are provided as standard, enabling compelling infographics to be created to curate data and describe trends for consumption by citizens.

The Jadu document editor, a WYSIWYG, rich text editor includes functionality to embed snippets of code within a page, so interactive flash and JavaScript representations of the data can be easily added. The extensible nature of the system would also make it easy for the client to plug in their own tools to create visualisations.

Jadu would provide bespoke widgets as part of the solution that take data from its database and present it as interactive graphs, tables and maps - providing easy to use visualisation tools. As the data is drawn in from the database, when re-imported, the interactive items will also be updated and refreshed - making the visualisations dynamic / real-time in nature.

A REST API would be provided to allow users to access and reuse the data easily, with responses from the API provided as XML. An API key is required to access the API, which allows the client to manage which users can access information. If this was not required, Jadu would look to remove the API key requirement as bespoke development.

Jadu CMS includes out of the box functionality for managing downloadable files. Data imported into the solution could be provided as CSV downloads using this functionality to encourage further analysis and re-use of the complete data set.

Legal issues

The Jadu CMS provides easy to use publishing tools, and we would encourage the client to publish the following documents, as appropriate:

- a statement of risk, documenting the risks of using the data.
- a contributor license agreement and a statement of the contributors with whom an agreement has been made.
- a rights statement, describing how data can be re-used.
- a waiver of rights.
- a page explaining the rights and licensing of the data.
- a privacy impact assessment.
- a terms and conditions page.

Documents held within the Jadu CMS can be accessed using the API provided, but additional bespoke functionality can be provided to also publish the rights statement in a machine readable format using the open data rights statement vocabulary. A link would be provided to the rights statement from the output of

the REST API.

Jadu would work with the client to anonymise data during the import process by the use of statistical disclosure controls and removal of personal details where necessary. We will work with the client's third party auditor to ensure the anonymisation was satisfactory.

Attribution links and copyright notices would be included in the page template and we would work with the client to identify what should be the content of the robots.txt file on the site.

A link to the license data is offered under will be available on the directory landing page, with appropriate iconography for ease of recognition.

Practical issues

Jadu would advise the client to submit the website to relevant search engines to be indexed and to catalogs such as the Data Hub or data.gov.uk. The website would output the data in a format that was structured using semantic HTML and microformats, allowing web-crawlers to index the data in a meaningful way.

By undergoing a process of user testing, we would seek to ensure that the user interface of the solution was intuitive. Monitoring and analysis of web analytics gathered from the web site on an on-going basis could be used to guide the development and refinement of the solution.

Using the publishing tools provided in the Jadu CMS, errors in the data could be documented and exposed using the out of the box API, and a content managed form built using the standard functionality to enable reporting of errors found by users.

Technical issues

Data would be published as a series of directories of data using the standard functionality of Jadu CMS. This would include storage within a MySQL database, output as a REST API, and a HTML web interface. Web pages would be marked up with valid HTML, use microformats where appropriate and are cached to provide quick and reliable performance.

CSV files containing the raw and aggregate statistical data in full would be made available using the file management functionality provided with the content management system, which could also be accessed using the built in REST API. Reference data would be made available as TXT files. Jadu CMS API outputs XML responses, JSON responses could also be provided if required.

Jadu CMS uses URIs as persistent identifiers, combining the datasets unique ID and data records unique ID to identify a single item in the data set. Alternatively GUID could be incorporated, if required, as bespoke development.

Web pages produced by Jadu CMS include extensive Dublin Core metadata, including: DC.creator, DC.format, DC.identifier, DC.publisher, DC.rights.copyright, and DC.title among others. If additional metadata was required by the client, we would look to add it as bespoke development.

Social issues

Where possible Jadu would make any solution self-documenting, but can also provide code snippets, tutorials and documentation on GitHub and other code sharing websites where appropriate. GitHub facilitates other developers raising issues, commenting and repurposing code in a collaborative manner with the developers at Jadu. Code examples from GitHub can be easily linked to and embedded on other

sites, and we would offer a bespoke widget to make it easy and non-technical for the client to embed code snippets using the Jadu CMS.

Jadu support clients at relevant stakeholder conferences, hack-days, meet-ups and user groups, with talks given by project team members, and stands offering demonstrations. Where the client felt it was appropriate, we would publish video tutorials to our Vimeo channel, and blog about utilising the tools provided. Again, Jadu would provide a bespoke widget to make it easy for the client to embed Vimeo or Youtube videos in the website. Jadu would encourage the client to provide a form on their website to allow users to report issues directly.

Jadu CMS includes blogging software, and a forum can be installed to promote discussion of the data by the community. Disqus can be embedded in the directory templates to allow developers to discuss and comment on the data directly on the site. Social media integration, to sites such as Facebook, Twitter and Google Plus, can also be added to the directory templates to encourage sharing and promotion of the data. Other suggestions might also include Google Plus pages for social interaction and collaboration.

Team

Jadu would form an agile team to work with the client and provide this service. This would include the following roles:

- **Scrum master**, responsible for facilitating meetings and removing impediments to progress.
- **Product owner**, responsible for working with the client to define the user stories and maintain the product backlog. The product owner would work closely with the client to prioritise user stories, and evaluate requests from stakeholders for new user stories.
- **User interface designer**, responsible for ensuring a logical, intuitive interface that supports and guides users to their objective.
- **Developers**, responsible for writing the solution, configuring environments and providing automated tests to ensure continued quality.
- **Software testers**, responsible for exploratory testing, testing the code delivered meets the acceptance criteria provided with the user story.

Additional team members with specialist skills, such as to provide training or content strategy advice, would be added to the team as and when required.

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About Jadu

The Jadu Universe Web Experience Platform is a sophisticated future-proof group of interlinking systems created by Jadu, a pioneering UK technology company specialising in the development of content management, online data capture, search and mobile applications.

A leading global vendor of Web Experience Management software, Jadu powers some of the largest websites in the world for some of the largest organizations of their kind, providing consultancy, project management, software engineering and design.

As a customer experience management system, Jadu Universe is a cost-effective platform purpose-built to enable public sector and not-for-profit organisations, educational establishments and businesses to upgrade, rationalise and integrate their systems easily and move quickly to full digital-by-default service delivery.