Reimagining Case Management in Children's Social Care Pilot
North Yorkshire Council

Department for Education Data & Digital Solutions Fund

Evaluation Report March 2024

Summary

This is an evaluation report of the Reimagining Case Management work North Yorkshire Council have undertaken, funded by the Department for Education's Data & Digital Solutions Fund.

This evaluation report has been written alongside the development of the tool, which is a proof-of-concept product. The product is connected to Children's Social Care data, providing a search function, for previously difficult to search information and auto-generated ecomaps that visualise children's networks.

Further development and evaluation of the impact the tool has on practice could take place in 2024/25.

Contents

Executive Summary

Background

For a long time, there have been questions raised about the role technology plays in Social Work. Two landmark reviews of the Children's Social Care system have criticised technology for hampering social workers rather than helping them but there has been little movement in redressing this balance due to a number of key factors.

Firstly, in respect of case management systems there is little in terms of variety available to the sector. Two case management system providers dominate the market and Local Authorities (LAs) are often in a position of multi-year contracts. Secondly, whilst many people are keen to see technology improve their access to information, the potential benefits of changing systems appear outweighed by the effort and costs associated with this. Including migrating data and staff training. These factors are significant contributors to the market stagnation that is apparent.

The Department for Education had heard from the sector that social workers' digital tools do not adequately support their information recording, retrieval, sharing or analysis, adding to burdens and not optimally supporting decision-making. To respond to this the Department for Education's (DfE) Data and Digital Solutions Fund (DDSF) and sought LAs to demonstrate how advanced technology could deliver improvement. Through this fund North Yorkshire Council was provided an opportunity to pilot innovative technologies and solutions aimed at improving information retrieval and analysis, and to reimagine case management. This work has been an exploration, incorporating Artificial Intelligence (AI). AI has become a headline topic globally and the timing has meant that there is an appetite to think about safe and ethical use cases for AI within Children's Social Care (CSC) practice.

Aims

This pilot aimed to create two proof-of-concept tools: one that provides a search function for previously unsearchable unstructured data and difficult to search structured data; and a second tool that creates auto-generated ecomaps showing the networks around children from information held within a CSC case management system.

In the short term, it is expected that implementation of these tools would reduce the amount of time social workers spend looking for information, reduce their administrative workload and help them understand networks better.

In the medium term, the tool hopes to improve outcomes for children through better understanding of the networks around children and families, increase the number of people within children's networks, increase the percentage of time social workers can spend with children and families and increase the wellbeing of social workers.

The longer-term impacts of this tool could lead to the modernisation of how case management is perceived as well as influencing the wider approach to technology enabled social care and the dissemination of the tool to other areas of the council such as Adult Social Care and to other Local Authorities or organisations.

Methodology

This innovation work has used co-production principles and Agile methodologies such as MoSCoW analysis for requirements. A detailed benefits plan was developed with baselines identified to measure success. The evaluation has assessed the following evidence:

- Case study workshops with individual social worker teams
- Surveyed 981 Children and Young People's Services (CYPS) colleagues - 218 responses
- Initial user feedback from CYPS locality events - 211 responses
- Continual review by technical, practice and user experience experts
- User testing groups/pilot workshops

5

Key Findings

The project has contributed to debate and an emerging approach to the use of AI in Social Care practice, as well as the wider Public Sector. This is both in real terms and to inform the strategic direction of innovation and ideation of what services might look like in the future. The work gives confidence about AI in practice and informs the ethical and practical guardrails required to ensure practice remains safe and person centred.

This work has also been able to evidence the data retrieval burden social workers currently face. Previous reviews and studies have focussed on the time social workers spend at their computers. This work has been able to break that down further into productive and unproductive tasks, associating real world costs to tasks, and potential savings, in a way that has not been available before.

Using data collected at case study workshops, in a baseline survey and at pilot workshops, taking one example of a task that is carried out frequently, "finding a recent safety plan", there was a significant reduction of seconds for this task. Baseline readings for time taken to find the most recent safety plan was estimated to be 180 seconds, which increased to approximately 200 seconds when an additional cohort of respondent data was collected. After several user testing sessions with the proof-of-concept product, the longest time taken to perform the same task was 20 seconds.

Comparing 20 seconds against either the 200 or 180 second values represent a reduction of over 94% in both cases for this one sample studied.

Recommendations

Further Development:
- Work to implement the next steps from requirements analysis at Section 4.1.4 (E.g., enhance audit trail, finalise data refresh, LiquidLogic forms, expansion to other datasets including through work to define data standards)
- Work to implement recommendations from User Experience
- Test implementation based on documentation produced for other appropriate use cases

Independent Evaluation:
- Validate and assess the key hypotheses at Section 2.1.3
- Track the tool over one year (understand what improvements are required first and implement them, as per recommendation above). In this time look to particularly understand:
    - If there is a requirement for data matching – this means comparing two or more names/records and computing the possibility of them belonging to the same entity.
    - Costs – costs to run when new data is being added and support costs
    - How it is used by users

Data Entry/Data Quality E.g., work towards defining the data standards which would be helpful to embed:
- Update the filetypes being added to LiquidLogic (do not allow .doc files, these should all be .docx) because some Azure services are unable to process .doc files (old versions of Word documents for example)
- Explore input methods (audio/transcriptions, photo, video)

Information Security: The pilot included consultation and implementation of best practice technical infrastructure to ensure information security, there could be further work to validate the information security approach

Data Governance:
- An Information Asset Owner is defined and the Information Asset Register updated
- Consider consultation with ICO on data governance/DPIA
- Consider consultation with children and families on use of data, this relates particularly to further development as data governance considerations would change when opportunities are explored

Conclusions

This work has been able to demonstrate that there are advantages in looking at the problems caused by volumes of difficult to search information from a different perspective. The work has developed tools that are source system agnostic, relatively low cost, provide significant value and could have a lot of applications across a variety of sectors and use cases.

The CSC workforce have contributed to the development from the outset and throughout. This has resulted in a feeling of empowerment, that they can influence a change for the better in a part of the system that causes them so many difficulties.

The work gives confidence about AI in practice and informs the ethical and practical steps for ensuring emerging technologies work to empower and enable the social care profession.

1. Background

1.1 The Current Children's Social Care Landscape

In England, last year, there were over 400,000 children in need, over 50,000 children subject to child protection plans, 84,000 children in care and over 100,000 Care Leavers aged between 16 and 25. Local Authorities completed 655,540 assessments of children who might be in need of care or protection. [1]

Consecutive reviews of Children's Social Care have highlighted concerns about Social Work time spent at the computer and about IT systems hindering, rather than helping practice [2]. This mixture of high and increasing demand on top of challenging systems creates a significant weakness.

Table One: Comparison of the number of children per 10,000 who are in need, the subject of a Child Protection Plan and who are looked after by the Local Authority in North Yorkshire, Statistical Similar Neighbours, Regionally and Nationally.				
	North Yorkshire	**Statistical Neighbours**	**Yorkshire and the Humber**	**England**
Children in Need	255.20	286.11	354.20	334.30
Child Protection	36.50	35.88	48.50	42.10
Looked After Children	38	62.50	81	70

Table 1: Source: Local Authority Interactive Tool (gov.uk) [3]

The percentage rate of social worker turnover in North Yorkshire is lower than the national and regional average at 14.5% in 2022. However, this percentage has steadily increased over the last six years from 8.2% in 2017 (See Figure 1).

Percentage Rate of Social Worker Turnover
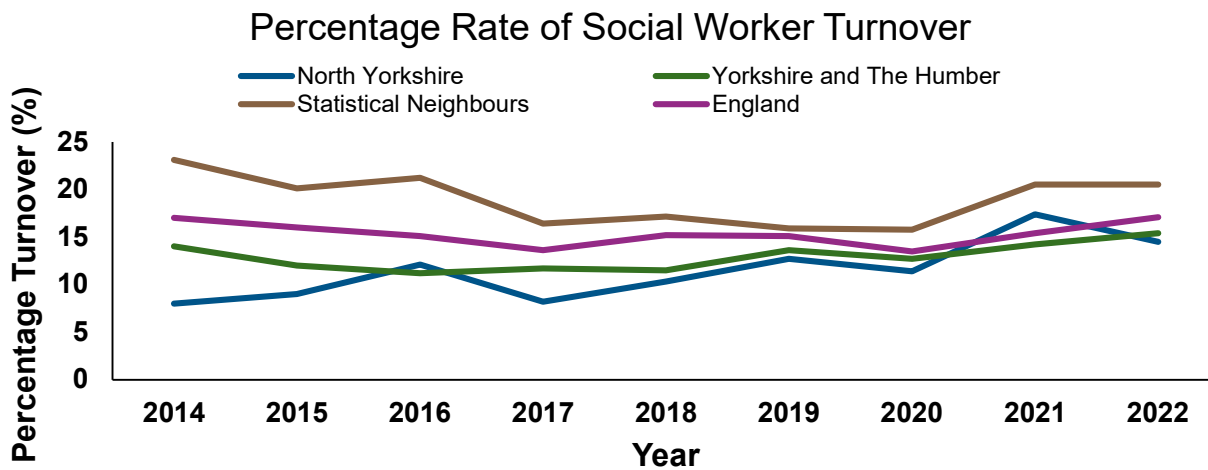
Source: Local Authority Interactive Tool (gov.uk)

Figure 1: Comparison of the Percentage Rate of Social Worker Turnover in the Children's Services Workforce in North Yorkshire to the Nearest Statistical Neighbours, Regionally and Nationally [3]

A longitudinal study of local authority child and family social workers conducted by the Department for Education in 2023 examined the reasons workers consider leaving local authority social care. Almost a third of those considering leaving cited the amount of paperwork as one of the reasons and this percentage rose in both frontline practitioners (33%) and newly qualified social workers (44%) [4]. Similarly, of those workers who agreed that they felt stressed by their work, 56% of them identified too much paperwork as being one of the issues contributing to their stress [4]. On average, workers reported spending 24 hours per week completing case-related paperwork. Therefore, the administrative aspects of children's social work appear to play a key role in the retention and wellbeing of staff.

Interestingly, when asked what factors would influence social workers to remain or return to local authority social work, 36% identified a more manageable admin and paperwork workload as a factor and 22% identified a better working environment/technology [4]. This therefore suggests that improvements to both admin and technology may lead to higher staff retention.

1.2 Case Management Systems within Children's Social Care

There are several Case Management Systems on the market; however, a freedom of information request sent to local authorities by Community Care in 2019 revealed that across the 124 councils that responded, 44% use LiquidLogic (now called System C) as their Case Management System in Children's Services, followed by Mosaic at 24% [5]. North Yorkshire Council also use LiquidLogic as their Case Management System (CMS) within their Children's Social Care (CSC) Service and will hereafter be referred to as LiquidLogic.

Case Management Systems Used in Children's Services across 124 Local Authorities

- LiquidLogic
- Mosaic (Servelec)
- CareFirst (OLM)
- Frameworki (Servelec)
- CareDirector
- Swift (OLM)
- Other

Source: Community Care Survey 2019 [4]

Figure 2: Proportion of each Case Management System Used within Children's Services across 124 Local Authorities

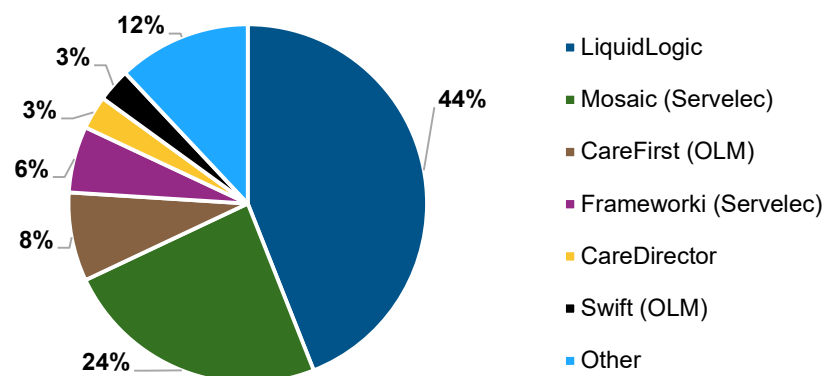In the longitudinal study of local authority child and family social workers conducted by the Department for Education (2023) Less than half (46%) of social workers agree their IT systems and software support them to do their job. [4]. When asked about the aspects of paperwork and admin that are burdensome, 9% of workers cited poor IT systems as an issue [4].

1.3 North Yorkshire Council

North Yorkshire Council (NYC) provides services to a population of 618,000 people across an area of over 8,000 square kilometres [6]. It is a new unitary authority formed in April 2023. Before this, there was a two-tier system of local government in North Yorkshire. This meant that local government services were provided by eight councils: North Yorkshire County Council, five district councils and two borough councils. Services for Children and Young People were provided by North Yorkshire County Council across the entire geography prior to the establishment of the new Council.

In February 2024 performance reporting to the Council's Executive showed the following [7]:

- 7,623 contacts received for Children and Young People Services; the highest quarterly number ever recorded (96% were screened within one working day)
- 1,545 households are currently receiving support from the Council's Early Help Service.
- 1,519 referrals were made to Children's Social Care in the quarter which is the highest for eight years
- The number of young people with Education and Health Care Plans rose this quarter to 4,787 (this is a 9% increase compared to the same period last year)

Children's Social Care in North Yorkshire continued to be rated Outstanding in all areas when inspected in July 2023 [8].

In 2022, the number of individual children open to services in North Yorkshire was 2,505 which is a rise of 433 on the previous year. However, the number of FTE children's social workers in 2022 was 263.20 which is a drop of 18.70 on the previous year. Therefore, caseloads have risen but the size of the workforce has not increased [3]. This is reflected in the average number of children allocated per social worker which has risen by 1.30 from 15.40 in 2021 to 16.70 in 2022 [3]. Our internal survey conducted as part of this pilot showed the current average number of children allocated per social worker to be 17.26 (data collected December 2023). This is slightly higher than the national average of 16 per FTE [9].

Table Two: Breakdown of job roles for staff working in Children's Social Care in North Yorkshire Council by Number of Workers and Total FTE

Job Role	Number of Workers	Total FTE
Children and Families Worker	173	152.9
Social Worker	166	134.8
Practice Supervisor	75	63.0
Team Manager	27	26.8
Group Manager	13	11.5
Children and Families Support Worker	67	60.6
Leaving Care Case Worker	29	20.2
Care Worker	20	17.5
Youth Justice Officer	14	12.8
Independent Reviewing Officer	18	13.5
Early Help Consultant	29	9.5

Table 2: Breakdown of job roles for staff working in Children's Social Care in North Yorkshire Council by Number of Workers and Total FTE

Nearest Statistical Neighbours: Cheshire East, East Riding of Yorkshire, Warwickshire, Cheshire West and Chester, and Rutland [3]

2. Definition

This pilot aims to create two proof-of-concept tools: one that provides a search function for previously unsearchable unstructured data and difficult to search structured data; and a second tool that creates auto-generated ecomaps showing the networks around children from information held within a Children's Social Care case management system.

In the short term, it is expected that implementation of this tool would reduce the amount of time social workers spend looking for information, reduce their administrative workload and increase the percentage of time social workers can spend with children and families.

In the medium term, the tool hopes to improve outcomes for children through better understanding of the networks around children and families, increase the number of people within children's networks and increase the wellbeing of social workers.

The longer-term impacts of this tool could lead to the modernisation of how case management is perceived as well as influencing the wider approach to technology enabled social care and the dissemination of the tool to other areas of the council such as Adult Social Care and to other Local Authorities or organisations.

2.1 Theory of Change

2.1.1 Analysis of Context

There are large amounts of information stored in the current case management system. This is structured data (information stored in a relational database), and unstructured data (documents and other file types held in a digital file store), both of which are difficult to search. Having an efficient tool for searching and visualising data will reduce time spent looking for information and improve access and understanding of previously 'hidden' data.

With a growing demand for support and increasing pressures being felt by workers, there will inevitably be a point of critical mass. This creates a risk around sustainability, but also an opportunity to leverage technology to help bridge the gap.

2.1.2 Theory of Change Model

The diagram on the following page describes how and why the desired change is expected to happen in relation to the context. The model identifies the situation, aim, inputs, activities, outputs, mechanism for change, outcomes, impacts, evidence for assessment, assumptions and possible unintended consequences.

Situation	There are large amounts of information stored in the current case management system. This is structured and unstructured data, both of which are difficult to search and view.	Aims	1. Case management modernisation 2. Social workers spend less time searching for information and navigating the system 3. Social workers increase the time spent with children and families 4. Improved outcomes for children through better understanding of the networks around children 5. Improved wellbeing for social workers 6. National usability and scalability through dissemination of the tool to other parts of the Council and other Local Authorities/organisations

Inputs and activities	Outputs	Change mechanism	Outcomes	Impacts
Inputs Funding from the Department for Education's DDSF 1x FTE NYC Data and Intelligence Specialist 1x FTE Subject Matter Expert from Children's Social Care Support from NYC Technology service, Transformation service Support from Microsoft and Simpson Associates Azure Data Factory, Azure SQL Database, Azure AI Service, Azure AI APIs: - Entity Recognition - Optical Character Recognition Virtual Networks (VNet), Private End Points Blob Storage Data from case management system (LiquidLogic) **Activities** Technical discovery and development activities Engagement with practitioners, including presentations, workshops and surveys User experience testing	A search tool which will index and query both structured and unstructured data held within the current case management system A tool that auto-generates ecomaps of relationships Practice guidance for use	A working prototype of search and ecomaps is created. Practitioners and technical staff given the opportunity to test and provide feedback in order to shape future iterations of the tool. Longer term change mechanisms would include: Continued usability testing to understand use by practitioners Training Comms and engagement (internally, externally)	**Short term** The working proof-of-concept tool capable of searching data held in the Case Management System and creating ecomaps demonstrates that it could: - Reduce time spent on data retrieval tasks - Improve understanding of networks around children - Improve the outcomes for children and families - Improve wellbeing for social workers. **Medium Term** Better involvement of networks in plans to keep children safe. More children cared for within their network rather than with foster carers. **Long term** Extending the capabilities of the tool to other areas of the council (e.g., Adult Social Care) National usability and scalability through dissemination of the tool to other Local Authorities Technical infrastructure to facilitate a platform for better/easier data sharing Case Management System Modernisation	Improved outcomes for children and families Modernised and improved practice/process Scaled and used nationally Capabilities extended to other areas and datasets (e.g., Adult Social Care)
Evidence assessment	- Case study workshops with individual social worker teams - Surveyed 981 Children and Young People's Services (CYPS) colleagues - 217 responses - Initial user feedback CYPS locality events - 211 responses - Continual review by technical, practice and user experience experts - User testing/pilot workshops			

11

Assumptions	Feedback and advice from technical and CYPS experts is honest and impartial. User testing will be conducted with people with varying levels of digital skills. User testing could be impacted by the degree of familiarity with the child.	Possible unintended consequences	Adds to existing concerns/potential negative views about new technology and use of AI – both generally and specifically in children's social care

Table 3: Theory of Change Model (Based on Department for Education 2023 Template)

2.1.3 Key hypotheses

1. Having an efficient tool for searching relevant information will reduce time spent looking for information

2. Having access to a tool that can visualise networks will help practitioners to understand and involve networks in keeping children safe or caring for children

3. Having access to search and ecomap tools will help practitioners understand children's networks better and will mean they can engage them to improve outcomes for children and families

4. Having access to search and ecomap tools will positively impact the mental health of practitioners by saving them time, giving them the right information at the right time and enabling them to focus their time on helping children and their families

5. Through minimising the data retrieval burden on social workers, savings will outweigh the cost of adopting and using the tool

2.1.4 Assessment of the Evidence

There is enough evidence to make an assessment of items one, three and five and this is undertaken in Section 4 of this report (Evidence). An independent evaluation is recommended to validate the key hypotheses and assess them.

2.2 Logic Model

Context	Inputs		Outputs		Outcomes		
	Resources		**Activities**	**Participants**	**Short Term**	**Medium Term**	**Long Term**
There are large amounts of information stored in the current case management system. This is structured and unstructured data, both of which are difficult to search.	Funding from the Department for Education's DDSF 1x FTE NYC Data and Intelligence Specialist 1x FTE Subject Matter Expert from Children's Social Care Support from NYC Technology service Support from NYC Transformation service Support from Microsoft and Simpson Associates Azure SQL Database Case Management System (LiquidLogic) Azure AI Services		Development of a search tool which will index and query both structured and unstructured data held within the current case management system Development of a tool that auto-generates ecomaps of relationships UX testing to understand usability and create guidance for use	Children's Social Workers in North Yorkshire Council *(Other Local Authorities)*	Social Workers can access a working proof-of-concept tool capable of searching data held in the Case Management System and creating ecomaps	Social Workers spend less time searching for information and navigating the system Social Workers increase the time spent with children and families Improved outcomes for children through better understanding of the networks around children Improved wellbeing for Social Workers	Extending the capabilities of the tool to other areas of the council (e.g., Adult Social Care) National usability and scalability through dissemination of the tool to other Local Authorities Case Management System Modernisation Reduction in Data Breaches

Table 4: Logic Model (Based on the University of Wisconsin Model)

Assumptions: Changes to the source system may mean additional effort is required

External Factors: In reference to national usability, scalability each Local Authority area has different demographics and local arrangements and outcomes may vary accordingly

13

3.   Methodology

The pilot was evaluated using a mixed method approach which drew on both quantitative and qualitative research methods. A variety of data were examined which included the following:

- Case Studies with different areas of Children's Social Care
- Data from a baseline of Council's Children's Social Care Service staff on their experiences using the case management system and how it affects their practice
- Pilot workshops with different areas of Children's Social Care
- User experience testing sessions with Children's Social Workers to assess usability of the tool

Further information on the exact methods used to gather this data is given below.

3.1 Case Studies with Different Areas of Children's Social Care

Six workshops were conducted prior to development of the prototype tools across the different teams that sit within Children and Young People's Services. Business analysts met with all core teams, this was seen as important because the way in which teams use the existing Case Management System and the tasks they carry out on a day-to-day basis can differ greatly.

We conducted 'Service in a Snapshot' workshops with the following teams:

1. Front Door Team
2. Children in Care Team
3. Adoption Team
4. Leaving Care Team
5. Early Help Service
6. Safeguarding Team

Workshop sessions were between 90 and 180 minutes, the length of time depended on the amount of information there was to be discussed. The general format of the sessions comprised of a brief introduction to the project from the Project Lead. Then a list of tasks that are carried out on a regular basis were generated. For each of the tasks we measured the length of time it took, and the number of steps carried out to complete the task, for example, finding a safety plan for a child. There was also discussion about how the tool might benefit each of the pieces of work that Social Workers carry out.

Outputs from sessions held with the four teams listed in **bold** above are included at Appendix 1.

3.2 Baseline Survey of Children's Social Care Service

Information from the case studies was used to develop benefits measures and to develop the questions included in a survey designed to provide baselines for the measures (Appendix 2).

This survey was an online survey, using Microsoft Forms and was conducted prior to the implementation of the tool to establish baseline measurements for CSC workers experiences using the current case management system. The survey was co-produced with CSC workers and cognitively tested with staff members from the service, this provides a high-level of confidence about the validity and reliability of responses. Microsoft Forms was selected as the most appropriate mechanism for collecting data because it was a corporate system available and was accessible to respondents.

The survey was open for response from August to December 2023. To increase engagement in the survey amongst staff members, the survey link was distributed in Microsoft Teams Channels for each of the

Children's Social Care Teams and managers were requested to prompt staff to complete the survey. The survey was promoted at in-person Locality events that took place in November/December 2023.

The survey was split into six areas and totalled 19 questions: demographics of staff (team, location, experience), case management overview, case management experience, information retrieval, technology and digital confidence, and feedback on the current system.

The section to collect staff views on perceived technology and digital confidence was included as the tool developed as part of this pilot is a digital solution. This was included to account for variations in technical confidence.

The survey collected discrete data, through a Likert rating scale (limited options within a range). Most of the data collected was quantitative and a limited number of questions resulting in qualitative data. The data was collated and summarised. The main value of the data was that it was used to understand granular details for social worker tasks (how long tasks take, how often tasks are performed) and this alongside job role data was used to estimate costs.

It was planned to conduct a follow-up survey that mirrored the baseline survey after an implementation period. This would ask respondents for views after utilising the tools and a comparative analysis could take place. Unavoidable delays in the technical development meant the prototype was not refined enough to release for an implementation period. A follow-up survey and comparison with the baseline survey results collected could be carried out in the future.

Instead, pilot workshops with social worker teams were successfully conducted. Participants had the opportunity to use a prototype of the tool, and their insights were captured by asking questions similar to the baseline survey alongside seeking specific feedback related to the utilisation of the tool developed to allow for assessment of expected benefits. These insights should play a crucial role in refining and enhancing future development. For further details, please refer to Section 3.4 (Pilot Workshops) and Section 4 (Evidence).

A copy of the Baseline Survey is attached at Appendix 2.

3.3 Introducing the Prototype - Children's Social Care Locality Days

Four Locality events took place in November and December 2023, all staff working in the directorate were invited to attend. During these events the first prototype of the tool was presented and demonstrated. There was also a question-and-answer session. Whilst presenting, a paper survey was conducted that included qualitative questions about the first impression and ease of use of the tool. This survey also asked for suggestions for future recommendations and any questions for the project team. A thematic analysis was conducted to understand the key themes.

A copy of the Locality Days Questionnaire is included at Appendix 3.

3.4 Pilot Workshops with Different Areas of Children's Social Care

During the structured workshop sessions, each lasting 150 minutes, a systematic approach was used. This involved an overview and demonstration of the tool by the Project Lead and Data Lead. Followed by exploration of two scenarios that closely mirrored everyday service usage.

1. **Manual Ecomap Creation:** Participants manually created ecomaps within their service, this was then compared to the auto-generated ecomaps produced by the tool

2. **Data Retrieval Task:** Participants actively engaged with the search function of the tool, specifically searching for an important document that they would use, this was measured and compared with baseline data relating to number of clicks and time taken

Additionally, participants were asked questions to gather feedback on aspects of the tool, including document identification, tool usage and opinions about the tool, as well as reflections about how using the tool compared to using the source system. These case studies provided evidence about time saved for data retrieval tasks and evidence about children's networks linked to ecomaps as well as valuable insight for further refining and optimising the tool. For more information see Section 4.3 (Evaluation of Expected Benefits), Section 4.4.2 (Evidence – Time Spent on Data Retrieval Tasks) and Section 4.4.3 (Evidence – Children's Networks).

3.5 User Experience Testing Sessions

Pilot workshops were developed in collaboration with the User Experience (UX) team. During the pilot workshop sessions moderated user testing was conducted and suggestions were made from the User Experience (UX) team to enhance the look and feel of the tool, including for accessibility. The UX team also conducted independent expert review and provided feedback. A summary of the feedback and recommendations from UX is included at Section 4.5.2 (User Experience Assessment).

3.6 Process Evaluation Questions: What can be learned from how the intervention was delivered?

Was the intervention delivered as intended?

- Key deliverables were delivered as intended and there was some opportunity to explore stretch goals and future opportunities
- An Agile approach was taken, this allowed the project team to pivot and respond appropriately to changes
- There were delays in respect of the start of the project and also during the project, time taken exploring options and changes in direction. The latter was expected in the context of an innovation pilot:
  - Delays relating to public/private endpoints and setting up secure infrastructure impacted the timeline on two occasions. In June/July 2023 to secure the Azure environment. Then later from Aug-Nov 2023 there was a requirement to do additional, unplanned work in order to access AI services in the secure environment. The work required was the creation of custom skills/functions and was relatively complex technically and labour intensive. Cost optimisation work meant that later iterations of the product did not require custom skills/functions
- Some budget allocation that would have been unused was repurposed and used to provide 'hands on' technical support from external data experts (Simpson Associates)
- The Council have absorbed some costs for technical and legal/contracts work that was not identified at the outset
- User testing was tailored to what was appropriate for the stage of development of the prototype, the pilot was smaller scale than initially planned. The tool was not available to CSC users to access freely over a period of time for their work, instead pilot workshops took place with social workers

Were there enough resources?

- There were enough resources, there were some challenges around availability due to unforeseen requests for technical work that needed to be undertaken to move forward

Were there any unexpected or unintended issues in the delivery of the intervention?

- See Section 4.1.2 (Technical Issues and Resolutions)

To what extent has the intervention reached all the people that it was intended to?

- Pilot was scaled back, despite this the entire workforce has been involved as planned (via locality events, workforce survey and user testing/pilot workshops)
- Coram-i supported sector wide engagement (CSC and innovation/technology sectors) as planned

- There has been more than expected engagement and interest in the project from a variety of other organisations and stakeholders. See Section 4.5.4 (Project Engagement) and Section 4.5.8 (Acceptability Summary).

What worked well?

- We were able to demonstrate the value of using data in a different way, evidenced by pilot workshops scenarios (data retrieval tasks and ecomaps) as well as the positive feedback and enthusiasm from users and other organisations
- The opportunity to test and trial something in a 'low risk' setting provided a space to innovate
- Different directorates and job roles worked well together to deliver the products
- Engagement with a variety of sectors in different settings
- Early engagement and co-production allowed for user-centric design
- The project won the iStandUK award for innovation at the iNetwork awards in March 2024
- A Senior Data Protection Officer was part of the project team who contributed to regular reviews and updates of the Data Protection Impact Assessment

What didn't work well?

- Delays in the development have meant the tool is not as feature complete, refined or tested as anticipated
- The focus on achieving the deliverables despite significant delays meant stretch goals were only explored to a small extent
- Repurposing some of the budget allocation for external support necessitated legal support and time taken to agree the contract deliverables and terms (this took place during the delivery stage)

What could have been improved?

- At the start of the project the emphasis should have been more on secure cloud infrastructure rather than user requirements functionality
- The requirement to agree deliverables far in advance, as part of the bid application was challenging when working in an exploratory context

What can be learned from the delivery methods used?

- Failure is okay and to be expected when being innovative, however, it is critical to fail as quickly as possible and pivot to an alternative approach

Could the intervention have been procured and delivered for less cost?

- In December 2023 the technical architecture was simplified to create a more cost effective solution. The infrastructure was altered to a data factory model, which removed the necessity to use custom functions as in data factory "off the shelf" AI services could be accessed in a private environment. Reference Fig. 3 Technical Architecture Diagram on page 22
- Further cost efficiency has been made through the use of synchronous and asynchronous API calls to the AI services

How has the context influenced delivery?

- Third-party experts have influenced the direction and decisions, it has expediated some elements of work and delayed others, e.g., time taken to draft and agreeing contracts for working with data analytics specialist during the delivery stage caused some delays
- Delivery partners have enabled costs to be reduced
- The project has been able to contribute to and learn from the emerging Public Sector approach to AI in practice

How did external factors influence the delivery and functioning of interventions?

- There was a delay to the start of the project relating to the time taken to achieve agreement for the funding of the project

How did external factors influence the attitudes and behaviours of target groups?

- The project team were aware of potential negative views due to concerns about new technology and use of AI (generally and in children's social care)

Summary of process evaluation

There were a number of key challenges in this project. The first being that the project began later than expected. The second was the significant delay faced when trying to resolve an issue to ensure best practice data security. There were several unforeseen security considerations due to the unfamiliarity with cloud infrastructure and advice was sought from Microsoft to verify concerns and the way forward. After working with a Microsoft delivery partner, secure infrastructure was developed and implemented.

A further challenge was leveraging Microsoft's 'out of the box' AI skills. It became evident that accessing these was unworkable, as they required sending sensitive data to non-private IP addresses. Initially custom skills were built to try to rectify this, proxying the AI services via NYC's secure network. However, it became apparent that this would increase the cost and be difficult to maintain long term due to complexity. Recognising the significance of this, the approach was altered to utilising an alternative model, eliminating the issue and reducing the ongoing cost of using the tool.

Due to the delays the tool developed was not as complete or refined as anticipated and therefore the pilot was tailored to something that was appropriate for the stage of development. This meant an implementation period was reworked into shorter pilot workshops with practitioner teams. Practitioners were still able to be fully involved in the design from the outset and throughout.

The interest in the project, the feedback from practitioners and the iNetwork award has been a welcome boost and provided reassurance that this technology is not only innovative and adds value, but is welcomed by the sector and practitioners.

Further reassurance for the sector has been the development of a Data Protection Impact Assessment which has been used as a working document throughout the project. This has highlighted that this work is possible and compliant from a governance perspective. This Data Protection Impact Assessment has been verified by the Council's third-party Data Protection Officer provider, this should provide the sector with the confidence that they too can adopt this technology.

3.7 Impact Evaluation Questions: What difference did the intervention make?

Did the intervention achieve the expected outcomes?

- The expected outcomes in terms of core functionalities of search and ecomaps were achieved
- Detailed baselining data was captured as expected
- Expected service benefits were captured at the start and some of these were validated at pilot workshops

Did the intervention cause the difference?

- All activity was standalone work associated with the proof of concept and therefore there is certainty that outcomes can be attributed to the intervention

What causal factors resulted in the observed impacts?

- The lack of dependencies and links with other existing/'live' systems aided development

- The Council and DfE's organisational culture and openness to new ideas and innovation alongside a willingness to take calculated risks supported the commitment and agreement of the work at the outset and throughout
- Commitment and support from senior stakeholders facilitated progress

Has the intervention resulted in any unintended outcomes?
- The wider Public Sector, Local Authority and Social Care sectors are currently developing their approach to use of AI in practice. This is both in real terms and to inform the strategic direction of innovation and ideation of what services in the future look like. This Intervention has contributed to this debate and emerging approach and will continue to do so. The intervention gives confidence about AI in practice and informs the ethical and practical guardrails required to ensure practice remains safe and person centred

Have the outcomes been influenced by any other external factors?
- Delays due to challenges accessing AI services in a private environment

To what extent have different groups been impacted in different ways, how and why?
- Children's Social Care Service has been impacted in a positive way, through demonstrating the capabilities of the prototype there were comments that displayed enthusiasm and anticipation of positive changes to processes forthcoming
- The Council has been impacted as this work has helped in developing the corporate approach to ethical AI innovation

Can the intervention be reproduced?
- The intervention could be reproduced. This would be aided by some of the outputs of the project including technical guidance and "packaged" elements which would make reproducing the intervention significantly less complex than developing it

What generalisable lessons have we learned about impact?
- A longer term, independent evaluation is recommended to understand impact

Summary of Impact Evaluation

The intervention achieved the expected outcomes related to core functionalities of search and ecomaps. Detailed baselining data was captured as anticipated, and potential service benefits were identified initially and validated during pilot workshops.

All activity was standalone work associated with the proof of concept, ensuring that outcomes could be directly attributed to the intervention.

Several causal factors contributed to the observed impacts:

- The lack of dependencies and links with other existing or live systems facilitated development
- The organisational culture of NYC and DfE allowed for exploratory work
- Senior stakeholder support played a crucial role in facilitating progress

External factors, such as delays due to challenges accessing AI services in a private environment, influenced the outcomes, in particular how refined the product was and the scale of the pilot with users.

Unintended, positive outcomes include the intervention's contribution to shaping the wider Public Sector, Local Authority, and Social Care sectors' approach to using AI in practice.

4. Evidence

4.1 Tool Development

4.1.1 Summarised Timeline of Development

June 2023: Set-up knowledge mining resource group. Determined the requirements for:

- Storage
- Database
- Connections
- Size of data
- Frequency of updates
- Required functions

July 2023: Set-up the secure environment for the resource group, built infrastructure to lock down the resource group behind a virtual network (to ensure data is secure when in transfer and at rest). Each component needed to be secured behind private endpoints – tested the security to ensure it is robust. Moved data from on premises to LiquidLogic database and LiquidLogic file store storage containers in the resource.

August 2023: Uploaded data into storage, indexed the data, built an indexer, built skillsets. Proved the ability to search unstructured data using Apache Lucene query language in a web application leveraging the index processes created.

September 2023: Produced 'knowledge store' output into Azure table storage to feed organisational reporting tools (this was later replaced by creating a new database structure for reporting and using these tables as the knowledge store). Created a reporting product based on the information held in the knowledge store. Developed a Power BI dashboard connected to the knowledge store, identified and implemented suitable 'network' visuals to produce ecomaps.

Nov/Dec 2023: Demonstrated the prototype of the product and gathered feedback from service users, this was through presentations at several conference style meetings to hundreds of social workers.

December 2023: Review of work to date, project team encouraged by feedback and evidence of positive engagement from service users. Consolidated position and identified key next steps.

January/February 2024: New Data Factory infrastructure implemented, making the solution more cost effective and laying foundations for incremental loads. See Figure 4: Technical Architecture Diagram below.

February 2024: Development of new Power BI dashboard based on user feedback of prototype. This was linked to tables views created by the Data Factory pipelines, using direct query methods to avoid large data loads and increase data retrieval performance.

March 2024: Incremental load/data refresh and LiquidLogic forms work being undertaken. Consolidation of documentation.

The technical architecture diagram below describes the architecture in-place from January 2024.
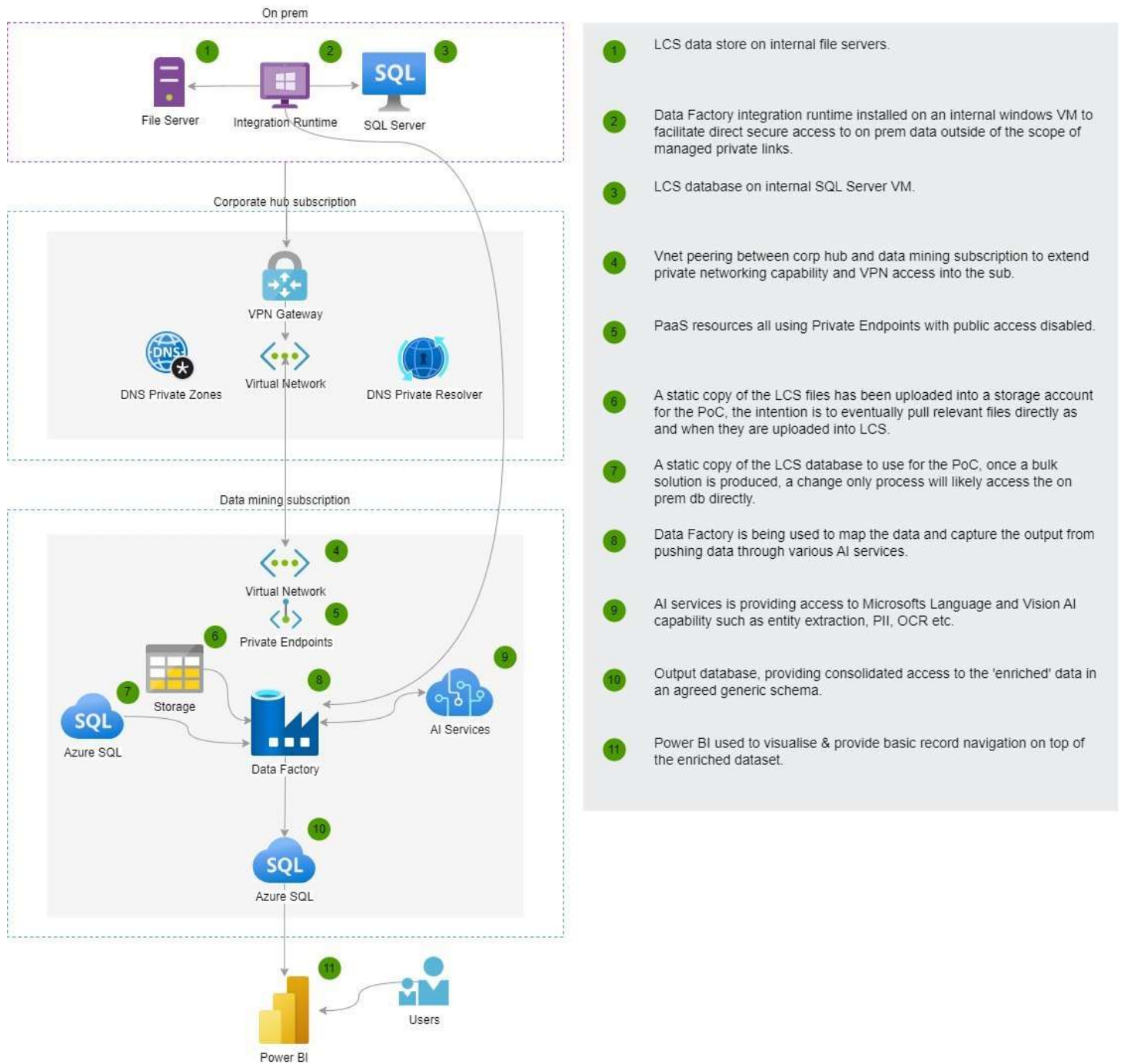
Figure 3: Technical Architecture Diagram January 2024

The diagram is accompanied by the following numbered annotations:

1. LCS data store on internal file servers.

2. Data Factory integration runtime installed on an internal windows VM to facilitate direct secure access to on prem data outside of the scope of managed private links.

3. LCS database on internal SQL Server VM.

4. Vnet peering between corp hub and data mining subscription to extend private networking capability and VPN access into the sub.

5. PaaS resources all using Private Endpoints with public access disabled.

6. A static copy of the LCS files has been uploaded into a storage account for the PoC, the intention is to eventually pull relevant files directly as and when they are uploaded into LCS.

7. A static copy of the LCS database to use for the PoC, once a bulk solution is produced, a change only process will likely access the on prem db directly.

8. Data Factory is being used to map the data and capture the output from pushing data through various AI services.

9. AI services is providing access to Microsofts Language and Vision AI capability such as entity extraction, PII, OCR etc.

10. Output database, providing consolidated access to the 'enriched' data in an agreed generic schema.

11. Power BI used to visualise & provide basic record navigation on top of the enriched dataset.

4.1.2 Technical Issues and Resolutions

Issue	Resolution	Implemented yes/no
Azure tenancy information security	Virtual private network	Yes
Accessing AI services in a private environment	The initial resolution was to build custom functions – this required specialist skills (coding c#) and bespoke configurations. The enhanced resolution was to alter the infrastructure to a data factory model, this removed the necessity to use custom functions as "off the shelf" AI services could be accessed in a private environment. Reference Fig. 3 Technical Architecture Diagram on page 22.	Yes
Database backup file for Azure redeployment incompatible	Secured backup from logship database clone, rather than the 'static' backup	Yes
Character limits	Async AI API to increase character limits from 5000 to 125000	Yes
.doc files which make up 25% of the overall documents are incompatible with Azure AI services	Work done to establish that these are not wholly historic files, 25% of the files added to LiquidLogic in February 2024 were .doc Resolutions could include: - Build in a step to convert .doc to .docx to the data factory process - One-off conversion of historic .doc files by undertaking a batch conversation process for all historical .doc files and saving them all as .docx prior to being sent to AI services for processing - Recommendation to disallow .doc files from being continually added to the source system	No
Ecomaps display a maximum of 500 nodes	Include this in practice guidance. Recommendation to understand how are the 500 selected and reference in documentation	No
Children record counts are vast and importing these into visual tool (Power BI) causes serious performance issues	Create materialised views to source the data from the database. Set Power BI to obtain records via 'direct query' from the views on a per child basis to vastly improve data retrieval performance	Yes

Table 5: Technical Issues and Resolutions

4.1.3 Dataset Summary

Below is a summary of the dataset consumed by the product during this project:

- 456,970 children – this is children only (e.g., cases), all have unique case reference numbers
- 2,058,858 documents – average 19 per child (documents in this instance, refers to files attached to a case and uploaded to the file store i.e. docx/pdfs etc. It is not referring to the forms in LCS)
- 7,523,745 case notes – average 87 per child
- 1,100,567 significant adults – this is probably more accurately described as a "Child+Adult relationship". If a parent has two children in the system, there will be two significant adult records for that person. One for Parent->Child A, another for Parent->Child B.
- 331,539 case workers – this works similar to the relationship above, except this is for "Child+Worker relationship". This record also has start and end dates, so contains a history of those relationships. If a case worker has been assigned a role working with the child over three time periods, there will be three records in for that Child+Worker combination.

After all documents and case notes are processed, the expected estimates are:

- An estimated 364,417,866 AI entities found in documents – average 177 entities per document
- An estimated 263,331,075 AI entities found in case note – average 35 entities per case note

For the last two items, entities can be repeated across documents or case notes. If "Dave" is found 10 times in a document, there will be 10 entities in the table.

4.1.4 Progress Against Requirements (MoSCoW)

The project used MoSCoW methodology to prioritise requirements, this involved categorising requirements as, 'must-have', 'should-have', 'could-have' and 'won't have'.

Below is a summary of the twelve items identified as must haves:

'Must-have' item	Comments
Compliance with GDPR/info security - ensuring the confidentiality and privacy of the children's data represented	Achieved. See Data Protection Impact Assessment. Reassurance for users about compliance with GDPR was one of the main themes coming out of the initial user feedback sessions (CYPS Locality Events) – because of this feedback a summary was added to the practice guidance document.
Search multiple data sources and file types - with one click and immediately relay the most relevant information to the user. The search needs to be able to see unstructured information, structured information and semi-structured information like LiquidLogic forms (e.g., a form that is structured but has free text fields within it, includes children and family assessment)	Achieved (partial) - further work needed to finalise how LiquidLogic forms are used within the product. Text limitation was overcome (see issues and resolutions Section 4.1.2). Optical Character Recognition is the AI service that allows searching of different documents, including contents. Expert review undertaken by the User Experience team resulted in improvements being made, including the "results returned = n" box and cleaning unnecessary demographic info from the user interface, manual workaround to highlight search term. Further work/decision needed around potentially building in the functionality to allow users to 'click through' to open the source document.
Create auto-generated ecomaps of people and addresses connected to children.	Achieved. Project produced a tool that can generate ecomaps based on data provided. A maximum of 500 nodes can be displayed in each ecomap.

23

The ability to carry out independent audit of all processes is part of the product(s) design - search analytics traceable user activity and search logs for monitoring and optimisation	Achieved (partial). The following audit information is available: • When the data in a report was updated • Who has accessed the tool, date and time Currently, not able to audit the specifics of what is searched for once within the product, i.e. which individual(s). In terms of controlling access from a security perspective, there are several options: • User access is limited on an account-based approach • Different views (audiences) can be made available to different users, so people only see the pages they need • Could blanketly block or implement row level security to prevent access to restricted records
The product(s) will have universal usability and should not be restricted to one model of service delivery, cloud storage, case management system or technology partner (as far as practically possible e.g.,)	Achieved (partial, not tested). Universal usability has been a key consideration for development - it is appreciated that other organisations may have differing source systems. With this in mind the infrastructure is purposefully system agnostic in terms of the source system, the tool developed can take data from many sources and display them all together and the design includes standardised database structures, pipelines and visualisation tool. The elements built within Azure (Data Factory and the ARM template) are specific to Azure (Microsoft) because that was the environment where the development took place. For the purposes of sharing a deployment package the elements built within Azure cannot be system/provider agnostic as there is little or no compatibility between the various cloud services. One of the reasons for selecting Power BI as the User Interface/visualisation was that it is commonly used and familiar amongst other LAs.
Data source refresh/update – the process for regular updates/real-time updates, the capability to auto-update the search/ecomaps when new data or changes in children's records occur in the source system	Achieved (partial). The current iteration is built with staging and enterprise layers with the intention of trafficking new data through the staging layer into the enterprise layer on an incremental/maybe daily basis. Further development work is required implement and test this, but the infrastructure would allow for this to be completed in the future.
User Interface (UI) - interactive, user-friendly that allows users to input search queries	Achieved. Power BI is the UI, one of the benefits of using this is that it is an application used by, and familiar to, many LAs. Recommendations for improving the UI from User Experience are included at Section 4.5.2.
Entity extraction - automatic identification and categorisation of entities such as names, places, events (for search and eco-maps)	Achieved, entity extraction is the AI service that enables ecomaps. In the tool the AI service 'entity recognition' is called to generate entities which are ingested by a network navigator product within Power BI to visualise. The entities mapped are people, places and products (and these can be filtered by type and confidence score) - entities that appear are not coded by risk or protective factors, and there has been no data matching of records. There could be multiple nodes for the same entity (e.g., Jon, John, Jonny, Johnathan, J). Considerations to refine the ecomaps include adjustments to the visualisations to make the view as useful to social workers as possible, improvements should be informed by further user testing.
Relationships indicator - system to detect and show relationships among different data points in the eco-map	Achieved. Colour coding has been used to differentiate entity types.UX recommendation was to agree accessible colours and include a key to explain the colour coding. Other methods such as node/edge type/colour have been considered and could be implemented subject to further testing and feedback from service users.

Solution for 'live' to fit within existing systems or applications	Achieved – for the proof of concept. The prototype could run alongside other key applications (LiquidLogic) to assist social workers accessing information at speed. Should be measured over a longer pilot period, alongside further testing, to be able to fully understand any service/customer impacts
The product will be cost effective for use by other Local Authorities	Altering the infrastructure to optimise costs has been a main focus of the work. Cost considerations should be balanced with information available about potential savings through efficiencies.
Scope for expansion to include other datasets including internal (e.g., housing, community safety), linking up with partners (e.g., police, Multi-Agency Child Exploitation, NHS, voluntary sector), to maximise value - need to consider data governance and information sharing agreements	Achieved - infrastructure in place to allow for this. At a high-level the infrastructure has been built in such a way that new data can be loaded into a data warehouse alongside the current dataset, transformed and pipelined into visualisation.

Table 6: 'Must-have' Requirements with Comments

It should be noted that whilst these requirements have been achieved technically, some are partial or not fully tested. For example, the search can include LiquidLogic forms, but further development is required, including with users, to incorporate these in a way that adds value.

In March 2024 work was ongoing to implement and test towards the data refresh requirement, the timescales available have not allowed this to be fully tested or implemented, but the infrastructure in-place would allow for this to be completed in the future (with further development). The current iteration is built with staging and enterprise layers with the intention of trafficking new data through the staging layer into the enterprise layer on an incremental/maybe daily basis.

Universal usability has been a key consideration for development, it is appreciated that other organisations may have differing source systems. With this in mind the infrastructure is purposefully source system agnostic so that it can be implemented where there are source applications other than LiquidLogic, this has been achieved through standardised database structures, pipelines and visualisation tool.

In the tool the AI service 'entity recognition' is called to generate entities which are ingested by a network navigator product within Power BI to visualise. The key entities mapped are people, places and products (and these can be filtered by type and confidence score, with a range of 0.8 – 1.0). The dataset includes over two million documents in standard formats from other agencies (e.g., Public Protection Notices, Police Checks, documents submitted to Multi Agency Risk Assessment Conferences). Entities that appear are not coded by risk or protective factors, and there has been no data matching of records.

In reference to the tool being cost effective, optimising costs has been a priority area for the project. Cost estimates at Section 4.4.5 (Financial Feasibility) show ongoing costs could be very small (around £10k per year), but significant unknowns mean making an accurate overall estimate is challenging. This is because set-up and ongoing costs depend on resources available and the position of the organisation together with how much data would need to be processed, based on the size of historic datasets and ongoing usage. All consideration of cost should be balanced against the significant potential for savings due to reduced time spent on data retrieval. See Section 4.3 (Evaluation of Expected Benefits) and Section 4.4.2 (Evidence – Time Spent on Data Retrieval Tasks).

The development of each requirement by experts at delivery partners (Microsoft and Simpson Associates) and cross-council services has also provided accompanying recommendations for improvements. For

example, there are opportunities to link information from the dataset to geospatial reporting, including where addresses and locations are held within unstructured data.

4.1.5 Lessons Learnt

A lessons learnt workshop took place, this involved informal conversations based around process and impact evaluation questions. This allowed project stakeholders to reflect on the completed project in a structured approach. This format allowed participants from the Project Team to share detailed perspectives on the work and included discussing and identifying areas for improvement and learning from both successes and mistakes.

Lessons learnt are included at Section 3.6 (Process Evaluation Questions) and 3.7 (Impact Evaluation Questions). A summary of technical issues and resolutions are included at Section 4.1.2 (Technical Issues and Resolutions).

The information available in these sections should be stored and shared to enable the organisation and wider sector to:

- Learn from mistakes
- Gather best practice
- Build trust
- Identify, document and analyse insights and patterns

4.1.6 Technical Guidance

A document collating technical information/guidance has been drafted and is available at Appendix 4 (Data Factory Documentation). This reflects technical information and learning from the pilot project and development of the version of the prototype that was tested by users at pilot workshops in February and March 2024.

Packaged technical elements have been prepared and included, these are a starting point and would require manual work by someone with the ability to configure connection strings and user IDs within the scripts in order to successfully deploy. This is because private data (e.g., account names, connection strings, URLs) has been removed from them and relevant local details would need to be provided for successful deployment.

The SQL database is available as a DAC Package (see Deploy a Data-tier Application - SQL Server | Microsoft Learn) [10] – this is a single .dacpac file, this would typically be deployed using SQL Server Management Studio. Appendix 5 (SQL DAC Package .dacpac).

Data Factory clone is available as an ARM template (see Copy or clone a data factory in Azure Data Factory - Azure Data Factory | Microsoft Learn – follow the steps for point 3: "Live Mode") [11], the ARM template would be deployed via the Azure Portal. This is a small number of .json files. Appendix 6 (ARM template for Data Factory Clone Zip).

Universal usability has been a key consideration for development (see section 4.1.4 Progress Against Requirements). The infrastructure is purposefully system agnostic in terms of the source system. The elements built within Azure (Data Factory and the ARM template) are specific to Microsoft Azure because that was the environment where the development took place. This is referenced in Table 6 ('Must-have' Requirements). For the purposes of sharing a deployment package the elements built within Azure Data Factory cannot be system/provider agnostic as there is little or no compatibility between the various cloud services. One of the reasons for selecting Power BI as the User Interface/visualisation was that it is commonly used and familiar amongst other LAs.

4.2 Expected Benefits of the Tool

At each initial case study workshop, services were asked to identify how the tools could be of most benefit to their service. This was carried out with each social worker team because each one uses information in different ways. For example, the Front Door Team are assessing situations within a short period of time before referring to the correct team; therefore, they will benefit from being able to retrieve large quantities of relevant information quickly. Whereas the Leaving Care Team will benefit from the ecomaps tool as it will help to stimulate conversations with young people. This could make their interactions more enriched and help to identify people that the young person may be able to reach out to and find support from. See section 4.3 (Evaluation of Expected Benefits) for more information.

Summary of expected benefits:
- Ability to find documents more quickly
- Ability to identify most recent documents
- Ability to find relationships more easily
- Reduction in reading time
- Improved complexity of ecomaps/genograms
- Better ordering of search results

Annex C Requests

An Annex C Request is a request for disclosure of information to support investigations of alleged child abuse, sexual or physical, current or history where the child was aged 17 and under at the time of the alleged offence. Annex C Requests should be covered by Schedule 2 Part 1 Paragraph 5 of the Data Protection Act 2018, where information is required to be disclosed by law or in connection with legal proceedings [12]. There are no statutory time limits in which a response to the request must be provided, however North Yorkshire Council aims to respond to requests in 14 working days.

One proposed benefit of the search tool is the increased speed and accuracy in which North Yorkshire Council could respond to Annex C Requests. Requests can often require social workers to compile historic information contained within the case management system therefore making it a task with a high level of data retrieval burden. Whilst this item was descoped from benefits monitoring it is likely that benefits relating to Annex C performance would still be realised. If the tool could access data across services then these benefits could also be applicable when dealing with Freedom of Information and Subject Access Requests.

4.3 Evaluation of Expected Benefits

Front Door Team

	Expected benefit	Assessment of benefit
1	Ability to find documents quicker, including most recent documents	Search function incorporates documents and case notes together, users can swiftly locate relevant information quickly, streamlining the search process and saving time.
2	Ability to find relationships easier by having ecomaps would benefit screening and Multi Agency Child Exploitation (MACE) Level One Meetings	The process of screening and MACE level one meetings could be significantly improved by access to ecomaps. The visual representation of relationships makes it easier to identify connections, dependencies, and potential risks, placing the child at the centre.
3	Reduction in reading time by having a document preview and search feature reducing the need to download and read all documents held	The tool eliminates the need to download documents in order to view the contents, user reported that this would be "life-changing". Combining case notes and documents together, users reading time will be reduced.

Comments and Quotes from Front Door team

"Good to include people of importance not just immediate family members".

"Consolidation of having documents and case note is so useful, saving so much not downloading documents, all in one place this will be great for the team."

"This tool is going to be incredibly valuable, and our team is eagerly anticipating its arrival. We're genuinely grateful, and we believe it will positively impact our mental well-being, not having to download documents will be lifechanging."

Adoption Team

	Expected benefit	Assessment of benefit
1	Ability to find documents quicker as currently information can be stored in different places.	Search function incorporates documents and case notes together, users can swiftly locate relevant information quickly, streamlining the search process and saving time. The tool's search feature offers efficient information retrieval, this will result in reduced search time, consolidation of resources and improved productivity.
2	Ability to quickly identify scanned letters in the system - currently all documents are stored in documents tab on the source system but need to be downloaded manually, opened in a native program (e.g., MS Word) then checked to see if the information is correct.	Search function incorporates documents and case notes together, this enables efficient searching and reading of document contents without having to manually download documents. This will result in time savings and improve productivity.

Comments and Quotes from Adoption

"The tool looks like it will be highly effective within the team, streamlining administrative tasks and significantly reducing the time required."

Early Help

	Expected benefit	Assessment of benefit
1	Improved complexity of ecomaps	Currently the source system generated ecomaps are simplistic and lack depth, with the new tool the ecomaps are improved; this provides a more comprehensive and detailed representation of connections and relationships within family networks. The richer visual depiction could aid practitioners in their assessments and decision-making processes.
2	Reduction in switching between multiple programs	Search function incorporates documents and case notes together, users no longer need to navigate multiple interfaces, leading to improved efficiency and streamlined workflows. Noted that users would likely still use multiple systems, as the tool itself is an additional interface that does not allow for data input. This would need further user testing to understand.

Comments and Quotes from Early Help

"The potential is massive, and it's amazing! The document notes highlight the great search function, clarity of information, and precise timings. The clear distinction between the start and end of each document using different colours is highly useful. Additionally, the organisation allows for easy identification of case notes, and other relevant materials."

Leaving Care Team

	Expected benefit	Assessment of benefit
1	Ability to find documents quickly	Search function incorporates documents and case notes together picking up specific words is time saving.
2	Improved understanding of networks	Using the enhanced ecomap tool provides deeper insights into a child's networks
3	Better ordering of search results	Chronological ordering of case notes and documents let users efficiently retrieve relevant data that is needed to build a comprehensive search of the person, improving efficiency.

Comments and Quotes from Leaving Care

"When individuals seek access to specific past records, using this tool will be immensely beneficial. Instead of sifting through vast amounts of information in the source system, the team can efficiently retrieve the relevant data that is needed using the timeframe and document search features. Connecting events from the past for example It's not uncommon for young individuals to inquire about past situations, such as why certain events occurred during their time with the team or when they were living in a particular place. Reflecting on these moments can provide valuable insights and fosters a greater understanding of the person and their network."

Children in Care team - *not able to schedule before the project ended*

	Expected benefit	Assessment of benefit
1	Reduced Clicking and reduction in switching between multiple programs	
2	Improved understanding of networks	
3	Better ordering of search results	

Safeguarding Team - *not able to schedule before the project ende*

	Expected benefit	Assessment of benefit
1	Ability to find documents quickly	
2	Improved understanding of networks	
3	Better ordering of search results	

Whilst it was not possible to arrange pilot workshops with two of the social worker teams, there are assessments of each of the expected benefits identified due to duplication of expected benefits across other teams that took part in workshops.

Future Benefits Realisation Plan – Baselines to Revisit in the Future

Several expected benefits identified at the outset would need a longer pilot period to assess, however the work did gather baseline data for these that should allow for a future assessment to take place. Expected benefits that could be assessed in the future and baseline measures are listed below:

Increased time spent with families: From the baseline survey that was conducted most respondents are spending between 20-80% of their time with families depending on their job role. For example, Practice Supervisors allocate less than 30%, Children and Families workers, alongside Support Workers dedicated a higher percentage ranging from 20% to 90%. Due to the limited implementation of the tool any change in time spent with families as a result of the tool's use cannot be measured across the workforce yet.

Records reflect the work that is done: Increased variety of different recording mediums (e.g., audio transcription, video) could enable more holistic records. The project and development did not include any changes to data input mechanisms, however the infrastructure developed allows for more exploratory work in this area.

Able to protect children better proactively before they come to harm: With a re-referral rate of 14.8% a longer pilot would gain a better understanding about whether utilising ecomaps provides a deeper understanding of the networks and relationships within a community. Utilising ecomaps could potentially identify and address issues before they escalate.

A reduction in the number of children entering care: This benefit could be realised as more information would be available resulting in better decision-making and less progression through services. Additionally, a longer pilot could potentially decrease the percentage of cases converted from a Child Protection Plan to Child in Care.

Auto-redaction: The capability of the tool to auto-redact was proven technically, however was not a function required by users in this particular use case.

Reduction in data breaches: This benefit could be realised as the tool reduces the need for users to download documents. Data breaches are recorded and monitored corporately and this measure could be revisited in a longer term pilot.

National usability and scalability: This would be measured by other Local Authorities adopting the tool. There is a high-level of interest in the project, see comments in Section 4.5.4 (Project Engagement). This, alongside the results and recommendations included in this report, indicate there are opportunities to build on existing interest resulting in national usability and scalability.

Summary of Expected Benefits Evaluation

From evaluating the expected benefits, users could streamline their search process by finding documents and case notes in chronological order, saving time by locating relevant information faster. Being able to quickly identify whether a document exists or not is a valuable benefit as it will reduce frustration and save time spent searching. The elimination of the need to download documents to view its contents would reduce reading time and increase productivity. Enhanced ecomaps that provide more detailed information about connections and relationships within networks could assist practitioners in their decision-making processes and assessments. Multi-agency meetings could benefit from quicker identification of connections and relationships. There are more details in the following Section 4.4 (Feasibility Study), this includes reports on data retrieval tasks (4.4.2) and children's networks (4.4.3). Seven expected benefits identified at the outset would need a longer pilot period to assess, however the work did gather baseline data for these that should allow for a future assessment to take place.

4.4 Feasibility Study

This section covers technical feasibility in terms of the technical work required to set-up and maintain the tool, exploration of the results from test scenarios (timing data retrieval taskings and measuring the size of networks), considerations relating to the existing case management system and risk and mitigation strategies.

The baseline survey assists with assessing feasibility, especially in allowing for estimates to be calculated relating to tasks frequently performed by the CSC workforce. There were 217 responses to the survey included for analysis. There were 42 from Practice Supervisors/Team Leaders/Managers, 39 from Social Workers, 27 from Children and Family Workers, 13 from Support Workers or equivalent and 13 from Leaving Care Case Workers, 58 Business Support Workers and 26 from Others. One respondent did not wish their response to be included for analysis. There was a representative spread of job roles from all geographical areas.

4.4.1 Technical Feasibility

Two parts of the solution developed are "packaged", this would aid deployment for another organisation. The packaged elements include the data factory infrastructure and SQL Database. It should be noted that some local configuration work will be required.

Universal usability has been a key consideration for development, it is appreciated that other organisations may have differing source systems. With this in mind, the infrastructure is purposefully system agnostic in terms of the source system, the tool developed could take data from many sources and display them all together and the design includes standardised database structures, pipelines and visualisation tool. The elements built within Azure (Data Factory) are specific to Azure (Microsoft) because that was the environment where the development took place and there is little or no compatibility between the various cloud services.

Technical feasibility is related directly to the particular organisation or individual wishing to implement and will depend on various factors, including, capacity, skills, budget and digital/data maturity.

Certain elements have not yet been finalised, this includes adding LiquidLogic forms and data refresh. These are referenced in the 'must-have' requirements (Table 6: 'Must-have' Requirements).

4.4.2 Evidence - Time Spent on Data Retrieval Tasks

Time spent on data retrieval tasks was measured at initial case study workshops and staff were surveyed to understand baseline activities (activity types, how long activities take and how often activities are carried out). Then particular scenarios were tested at pilot workshops, where the same task was carried out using the tool.

After summarising the data, the reduction in time and number of clicks is very significant. During the tests, it was noted that there could be significant variation for baseline measures, this was due to the location of the safety plan records and where the safety plan would be in the system (the standard deviation was 102 seconds).

	Time to find safety plan (seconds)	Clicks
Manual use of Source system	180	14
Using the Tool	17	5
Reduction	91%	64%

The safety plan example was re-run serval times and the process and reporting was quality assured by the Business Analysis team. The time in seconds reduced from 180 to 17 and the number of clicks reduced from 14 to 5.

		Manual use of Source system (from Initial Workshops)		Using the Tool (from Pilot Workshops)		
Team	Task	Time (seconds)	Clicks	Time (seconds)	Clicks	% time saved seconds
Front door	Finding a Safety Plan	180	14	17	5	91%
Early Help	Finding a Safety Plan	180	14	20	5	94%
Adoption	Finding a Safety Plan	180	14	15	5	94%
Leaving care	Finding a Qualification	180	13	15	5	94%

Table 8: Table to compare time and clicks from pilot workshops

In this small sample of four tests, the reduction in terms time in seconds for data retrieval tasks was over 90% in all cases.

4.4.3 Evidence - Children's Networks

In the pilot workshops an activity designed to test and validate ecomaps was conducted. The goal was to compare and demonstrate how many person entities the AI could identify against a manual process. Work was also undertaken to assess the quality and accuracy of the autogenerated ecomaps.

The task involved asking attendees to identify people in a child's network by examining the documents and case notes available in the source system within a time limit of **ten minutes.** This was then compared with the autogenerated ecomaps, that are available instantly.

Team	Number of unique person entities identified via manual search	Number of person entities identified via tool	Number of unique person entities via tool*	% increase in unique person entities identified - manual vs. tool
Front Door	6	537	63	950
Early Help	10	616	24	140
Adoption	6	537	63	950
Leaving Care**	10	3,765	32	220

Table 9: Table to compare manual and autogenerated ecomaps

*no data matching
*for this work the confidence score was set to one
**attendee worked with person for 9 years

An example from the Front Door Team. The tool was able to identify **63 person entities**, who were mentioned 537 times. For clarity, the ecomap visualisation does not list 537 entities, where there are duplicates the node visualisation is larger. A large node therefore means this entity has been mentioned many times.

It is important to note that no data-matching or cleansing has been conducted, some of the entries are likely to represent duplicates of the same individual, where they have been spelt differently or abbreviations have been used. For example, names such as John Smith, JS, John, Jonny may all refer to the same person. The feedback from users about this was that this was acceptable, and expected due to the complexity of the data being represented and was not a barrier to the tool being seen as useful. A statement from a practitioner at the pilot workshops refers to this:

"Even though the eco map may seem complicated at first glance, having access to more information is always advantageous, having the filters to redefine what is being searched is a great function. It enables us to make better-informed decisions and a more comprehensive understanding of the individual's network."

To validate the accuracy of the ecomaps analysis was undertaken cross-referencing the names provided by the attendees in their manual ecomap with the information available in the tool. An example of the manual cross-checking is available at Appendix 7.

Number of Relationships in Source System

The following is from data collected to understand average number of relationships as recorded in LiquidLogic in April 2023.

	Average immediate relationships	Average other relationships
Child in Need	5.2	1.4
Child Protection	6.2	2
Looked After Child	8.7	3.8
LAC/CP	7.1	2.2
Leaving Care	6.9	2.4
Average all Children	**Immediate Relationships: 7**	**Other Relationships: 2**

Table 10: Average number of relationships as recorded in LiquidLogic in April 2023

This shows the average number of other relationships recorded for children receiving services in the source system is two and the average number of immediate relationships in seven. Immediate relationships are defined as being one-step on a genogram i.e., mother, brother, son and also includes foster carers for children who have them.

How does the tool perform – Number of Relationships/Children's Networks?

Section 4.1.3 (Dataset Summary) shows an estimate of average number of entities per document to be 177, this includes all entity types not just person entities.

The following list is the fourteen entity types returned by Named Entity Recognition:

- Category: Person
- Category: PersonType
- Category: Location
- Category: Organisation
- Category: Event
- Category: Product
- Category: Skill
- Category: Address
- Category: PhoneNumber

- Category: Email
- Category: URL
- Category: IP
- Category: DateTime
- Category: Quantity

The average number of documents per child is 19. Therefore the average estimated number of entities of all types, per child, is 3,363.

Context – Costs of Foster and Residential Care

This tool clearly has an immediate benefit in relation to saving time but this is not the only cost in relation to children who services are provided to. The "Paying the Price" report produced as part of the Independent Review of Children's Social Care identified that the social cost for each child that needs a social worker is £14,000 per year [17].

As of March 2020 there were 389,260 children who needed a social worker with 80,080 Children Looked After. Nationally Local Authorities spent £5.3bn looking after children and £2.7bn safeguarding children. This does not include the £1.2bn legal costs relating to care proceedings [13].

Breaking those costs down further, residential care in the independent sector costs an average of £3,830 per week, foster care in the independent sector costs £820 per week [13].

Nothing mentioned here can account for the emotional costs associate with care proceedings for those involved.

This tool, whilst technical in nature, has the potential to impact practice and the decisions made about children. Traditionally there are small numbers of people listed as relationships for the children who services are provided to. The tool identifies significantly more people who make up a child's "network" with very minimal input required from the user. The hypothesis is that the more people you can identify and involve in a child's safety plan, the less likely they are to progress through the system. Similarly, with more people or a wider variety of people identified in a child's network, if the child cannot continue to live where they are, it becomes the more likely that there will be people in their existing network who are willing and able to care for them. This is rather than them living with foster carers who are unknown to them. This in turn would positively impact the national shortage of foster carers.

4.4.4 Existing Case Management System (LiquidLogic)

Performance and incident data

In the year 2023 the Council received 2,266 IT requests relating to LCS issues. Of these, only 75 were identified to be related to the user needing more training.

If there is an incident and there is service disruption affecting LiquidLogic, users may be able to access important information through the tool developed. This is another potential benefit in terms of business continuity.

Baseline survey

The baseline survey, described at section 3.2, provided data that can help understand views about the existing case management system in relation to information retrieval. There were 217 responses to the survey.

Analysis of the survey allowed for conclusions to be drawn on information retrieval, navigation, workload and decision making.

A majority of respondents found it challenging to locate information across different tabs (Documents, Forms, Case Notes) in the system. Only a small percentage (1%) strongly agreed that finding information was easy and only 3% strongly agreed that navigating the system was easy. The results indicated searching records for children with long-term involvement was difficult. A significant portion (32%) felt that their admin and paperwork workload was unmanageable. Only 2% of respondents strongly agreed that the way the case management system presented information helped with decision-making. A majority of respondents (60%) agreed that there had been times when they were unaware of information that could have supported decisions, because it was stored in an unexpected area of the system.

A high-level summary is below:

1. It is easy to find the information I need regardless of where it is stored in the system (Documents, Forms, Case Notes tabs on LiquidLogic)
- 128 disagreed or strongly disagreed (59%)
- 2 strongly agreed (1%)

2. It is easy to navigate the system
- 63 disagreed or strongly disagreed (29%)
- 7 strongly agreed (3%)

3. It is easy to search the records of children who we have been involved with for a long time
- 87 disagreed or strongly disagreed (40%)
- 7 strongly agreed (3%)

4. My admin and paperwork workload is manageable
- 69 disagreed or strongly disagreed (32%)
- 7 strongly agreed (3%)

5. The case management system helps my practice
- 35 disagreed or strongly disagreed (16%)
- 17 strongly agreed (8%)

6. I cross reference information routinely to be certain what I am looking at is the most up to date
- 39 disagreed or strongly disagreed (18%)
- 13 strongly agreed (6%)

7. The way the case management system presents information helps me in making decisions
- 56 disagreed or strongly disagreed (26%)
- 4 strongly agreed (2%)

8. I have been unable to find important information at a time when I needed it
- 125 agreed or strongly agreed (58%)
- 7 strongly disagreed (3%)

9. I have at times been unaware of information that could support decisions because it wasn't stored in an expected area of the system
- 130 agreed or strongly agreed (60%)
- 2 strongly disagreed (1%)

Charts illustrating this information are at Appendix 8.

4.4.5 Financial Feasibility

Estimate Costs for Data Retrieval Tasks

Initial case study workshops - time/cost estimates

The table below summarises the time taken, number of steps and costs for data retrieval tasks undertaken regularly by CSC colleagues. This is broken down by job role. This data was gathered at initial case study workshops.

- Cost per activity based on role, activity, and time taken in seconds to perform activity*cost per second
- Cost per second is based on the average hourly rate per job role divided by 3600 (seconds in an hour)

	Tasks Captured	Time of Task (seconds)	Number of Steps	Children's and Families Worker	Social Worker	Practice Supervisor	Team Manager
1	Search for a recent safety plan	180	11	£1.02	£1.27	£1.56	£1.70
2	Locating an initial application to court	43	4	£0.24	£0.30	£0.37	£0.41
3	Finding first safety plan	207	21	£1.17	£1.46	£1.79	£1.95
4	Finding the number of social workers a child has had	70	5	£0.40	£0.49	£0.61	£0.66
5	Finding the number of placements a child has had	92	5	£0.52	£0.65	£0.80	£0.87
6	Complete a summary of social worker's involvement *(time is for one visit, so if there were 5 visits it would be 65 multiplied by 5)*	65	8	£0.37	£0.46	£0.56	£0.61
7	Locating a birth certificate	229	18	£1.29	£1.61	£1.98	£2.16
8	Find birth parent contact information	55	8	£0.31	£0.39	£0.48	£0.52
9	Initiate a new signs of success pathway plan mapping form	62	5	£0.35	£0.44	£0.54	£0.59
10	Identify first visit of the year	38	4	£0.21	£0.27	£0.33	£0.36
11	Find English qualification certificate	180	12	£1.02	£1.27	£1.56	£1.70
12	Look for a professional's details	216	11	£1.22	£1.52	£1.87	£2.04
13	Find the last supervision	38	8	£0.21	£0.27	£0.33	£0.36
14	Find a Public Law Outline	182	10	£1.03	£1.28	£1.58	£1.72
15	Find a parenting assessment	78	5	£0.44	£0.55	£0.68	£0.74

This shows fifteen data retrieval tasks often undertaken, with steps and costs by job role. Locating a birth certificate takes 229 seconds and 18 process steps. The average cost for staff time across four job roles is £1.76. The longest it took a user to perform a similar search using the tool was 20 seconds, with an estimated average cost of £0.16.

Baseline Survey Time/Cost Estimates

A survey of the entire CSC workforce was undertaken to validate the information gathered at the initial workshops, aiming to provide a representative view. The data gathered allowed for estimates for data retrieval tasks annually.

Methodology for calculations made to establish cost estimates:

Role. Respondents selected their Job Role from the following list within NYC CYPS, as below:

- Children and Families Worker
- Support Worker or equivalent
- Social Worker
- Team Leader/Manager / Practice Supervisor/Coordinator
- Business Support
- Early Help Consultant
- Leaving Care Case Worker

The following data retrieval tasks were identified by practitioners and included as examples in the survey:

- Find Recent Safety Plan
- Find Original Safety Plan
- Find Child's birth certificate
- Identifying risky people in a child's network
- Find Legal documents / orders
- Find Contact details of a birth parent
- Find Educational achievements / certificates
- Find Health record / vaccinations
- Identifying people in a child's network that can increase safety
- Find Cultural genogram / family tree
- Find Education Health Care Plan (EHCP

Respondents were able to select one of the responses listed under the column "time taken to complete task". For this analysis these were converted to the following numeric values (seconds).

Time taken to complete task	Numeric Value (seconds)
I don't complete this task	0
Less than 1 minutes	30
1 to 2 minutes	90
3 to 5 minutes	240
5 to 10 minutes	450
More than 10 minutes	600

Table 12: Table showing conversions used in time/cost estimate calculations

Time taken to complete a particular data retrieval task was originally provided as one of the choices in the table above. Using the conversions above, all the different types of data retrieval tasks have been converted into decimal hours, per activity. This gave an estimated number of hours for an activity per week. To obtain

the estimated value for a 100% response rate for that activity and job role, the calculated number of hours was divided by the response rate and multiplied by 100. The 100% value was summed across all activity types to obtain the number of hours spent per week across all activities. A worked example follows:

- Job role = Child & Family Worker
- Estimated number of decimal hours for data retrieval activities per week:

Recent Safety Plan	Original Safety Plan	Child's birth certificate	Identifying risky people in a child's network	Legal documents / orders	Contact details of a birth parent	Educational achievements / certificates	Health record / vaccinations	Identifying people in a child's network that can increase safety	Cultural genogram / family tree	Education Health Care Plan (EHCP
1.73	2.19	0.75	1.78	1.31	1.18	0.95	0.83	2.04	0.96	1.50

- Estimated value for 100% response rate for data retrieval activities per week, the response rate for Child & Family Worker was 16.18%:

Recent Safety Plan	Original Safety Plan	Child's birth certificate	Identifying risky people in a child's network	Legal documents / orders	Contact details of a birth parent	Educational achievements / certificates	Health record / vaccinations	Identifying people in a child's network that can increase safety	Cultural genogram / family tree	Education Health Care Plan (EHCP
10.66	13.54	4.63	11.02	8.08	7.31	5.87	5.15	12.61	5.92	9.27

- Cost per week (for 100%) (£):

Recent Safety Plan	Original Safety Plan	Child's birth certificate	Identifying risky people in a child's network	Legal documents / orders	Contact details of a birth parent	Educational achievements / certificates	Health record / vaccinations	Identifying people in a child's network that can increase safety	Cultural genogram / family tree	Education Health Care Plan (EHCP
£971.91	£912.41	£692.43	£798.15	£919.05	£1246.16	£785.06	£885.03	£1372.29	£484.65	£788.73

- Cost per week is the total of all activities = £9,855.87
- Cost per year the above value multiplied by 45, the number of working weeks in a year = £443,514.16

This methodology was applied to all job roles and a summary is in the table below.

Role	Decimal Hrs per week for all data retrieval tasks	Decimal Hrs per year for all data retrieval tasks	Cost per week (£)	Cost per year (for responses) (£)	Response rate of role (%)	Cost for 100% (£)
Child & Family Worker	94.1	4,233.1	9,855	443,514	16.18	**2,741,124**
Support Worker or Equivalent	38.2	1,721.1	730	32,867	23.88	**137,634**
Social Worker	120	5400.6	16,901	760,583	24.70	**3,079,283**
Team Leader, Manager, Supervisor, Coordinator	100.7	4531.1	11,783	530,277	37.39	**1,418,232**
Business Support	15	675.6	716	32,258	75.32	**42,827**
Leaving Care Case worker	23.8	1069.1	951	42,821	44.83	**95,518**
Early Help Consultant	6.9	311.8	1,672	75,282	10.34	**752,820**
Estimated total annual costs for data retrieval tasks (£)						**8,267,438**

Table 13: Baseline survey - time/cost estimates

Using this method the estimated total costs (for 100% response) rate, all job roles and all data retrieval activities is £8,267,438. Methodology for these estimates is outlined above and in appendix 9 CSC tasks and costs.

Potential savings

A user survey and user testing (described in the methodology section above) showed that, compared to current manual search methods, the new retrieval tool significantly reduces the time needed to find a child's recent safety plan.

An initial workshop indicated that finding a recent safety plan using the manual method takes 180 seconds. When additional survey data was factored in, the estimate rose to 200 seconds. By comparison, user testing indicted a maximum of only 20 seconds to find a recent safety plan with the new retrieval tool.

Using the time/cost methodology described in the methodology section above, the social worker cost of finding a recent safety plan using manual search is £1.63 (for 180 seconds) or £1.81 (for 200 seconds); compared to only £0.10 (for 20 seconds) when the new tool is used.

From survey responses, it is estimated that, of the social workers who responded, the total times the activity 'find the most recent safety plan' was undertaken in a week was 160 times. With this number of manual searches (160), the cost per week is £260.72 (at 180 seconds per search) or £289.69 (at 200 seconds per search); compared to only £15.26 when the new tool is used (20 seconds per search). The new tool therefore delivers a monetary saving of over 94% compared to manual search, with respect to 'finding the most recent safety plan'

Data used for these calculations is available at Appendix 9 (CSC Tasks and Costs) and Appendix 10 (Social Worker Safety Plan Scenario).

Estimate Costs for Product

Cost to Set Up

Costs to set-up are entirely dependent on what the organisation setting it up has in place already. This is in terms of infrastructure, applications, licenses and staff. A digitally mature Local Authority with cloud infrastructure and internal staff with the required skills would incur significantly less costs than an

organisation without this, who may need to pay an external third-party specialist to support set-up and pay to establish a suitable environment.

March 2024 Costing Estimates

These estimates are rough and based on a relatively small sample of processing 500 items.

Estimate Data Processing Costs

These are additional to the daily "running costs" and cover the Optical Character Recognition (OCR) and Entity Recognition processing. "Documents" in this instance, refers to files attached to a case and uploaded to the file store i.e., docx/pdfs etc. It is not referring to the forms in LCS.

OCR

Estimated at ~£7.92 per 1000 documents.

Total of 2,058,858 documents

To process every document, the total cost would be: 2059 x £7.92 = **~£16,307.28**

Entity Recognition

Estimated at ~£7.24 per 1000 items (case notes and documents)

Total of 2,058,858 documents and 7,523,745 case notes = 9,582,603 items

To process every document and case note, the total cost would be 9583 x £7.24 = **~£69,380.92**

Total processing cost of ~£85,688.20

This is based on only a small subset of data and does not include the ongoing data storage and compute costs. This does not include LiquidLogic forms.

Costs will be impacted by:

- Documents that cannot be processed (either because they are an unsupported format or have passwords) will reduce compute costs
- The speed of the Azure AI processing (the longer it takes, the greater the bill)
- Whether Entity Recognition happens on everything in advance, or it is done on demand as and when needed

Ongoing Usage Costs

Two key changes to usage have moved the solution from mainly resource-based billing to mainly consumption-based. This reduces costs because with a mainly resource-based solution costs are incurred regardless of use. The reduction in costs were:

- £29 a day reduction by moving from Cognitive Search/Azure Function to Data Factory
- £13.50 a day reduction by moving the Liquid Logic snapshot SQL Server to be serverless

The main resource-based cost after these changes is Azure SQL storage and the cost is proportional to the database size.

The main consumption-based costs are:

- Data Factory
- Azure SQL
- AI Services

40

Standing Cost Estimates

These are the costs of having the system set-up, doing nothing. The costs are storage and networking costs.

- Data Factory
  Private Endpoint £0.54 per day

- SQL Server
  Storage ~£2.00 per day

- Other Networking
  ~£1 per day

- Total: £4.54 x 365 days = **£1,657 per year.**

Ongoing Usage Costs – North Yorkshire Council Estimate

There will be additional costs based on SQL Server compute usage, but these are unknown at present. To estimate those expected user-patterns need to be understood.

The figures below are based on analysis of the number of new documents and case notes being added to NYC's instance of LiquidLogic and based on the averages for the five years up to and including 2022. This historic data allows for rough estimates for ongoing processing costs (based on usage at NYC):

OCR
- Average of ~210,000 new documents per year
- 210 x £7.92 (cost per 000) = £1,663.20

Entity Recognition
- Average of ~551,000 new casenotes per year
- (551 + 210) x £7.24 (cost per 000) = £5,509.64

Expected cost of processing new data per year = **£7,172.84 per year**

LiquidLogic forms are not included in this estimate.

Support costs for the system

Due to the stage of development, it was not possible to report on ongoing support costs. Further development work, a longer pilot and evaluation would be required to understand this.

Other

Another factor for consideration is that the provision of efficient tools for CSC staff, to aid their work, could increase wellbeing and job satisfaction and this would have savings implications in relation to recruitment, retention and sickness. There is more detail on this point at Section 1.1 (The Current Children's Social Care Landscape).

Summary

Costs to set-up will vary and are difficult to estimate. There will be a one-off cost to process a backlog of data. However even with the estimated cost for processing a large backlog of data, the low running costs and potential for significant savings from reduced time spent on data retrieval amongst other efficiencies and benefits will make this type of product cost effective.

4.4.6 Data protection impact assessment

The Data Protection Impact Assessment (DPIA) has been continually reviewed and updated in consultation with the Senior Data Governance Officer resourced to the project and the third-party Data Protection Officer (DPO) Veritau. Veritau approved the DPIA for this work. The recommendation was that an Information Asset

Owner is assigned for the product and that it is added to the Information Asset Register. Further, additional approval could be sought through consultation with the Information Commissioner's Office.

A copy of the Data Protection Impact Assessment is available at Appendix 11.

4.4.7 Risk management

A risk register for the project was maintained throughout and actively managed in-line with corporate risk and issue management processes. Additional measures to ensure risk management was robust included consulting with a third-party data analytics specialist for check and challenge and to develop mitigations. It should be noted for context that the project was a proof of concept and has not been implemented and is therefore not currently being used. The below summary includes a high-level summary of risk descriptions only:

Risk status	Count
1. Risk related to the project itself - closed	7
2. Ongoing risk – open, can be influenced	13
3. Ongoing risk – open, little or no ability to influence	1
4. Issues – any status	0
5. New risks identified at closure	2

Risk related to the project itself – closed:

- There could be insufficient commitment and/or corporate resources available and this could cause delays (internal and also with partners)
- Timeframes set are unachievable and/or missed
- There is a risk that there are errors in the set-up of:
- the mechanism for secure transfer of data from an on-premises database to the Azure tenant
- the Azure environment / configuration is incompatible with the development work that needs to take place
- Tools developed do not have universal usability and are restricted to one model of service/technology provider
- Project outcomes are not properly evaluated *(see new risk identified at closure)*
- Planned IT work such as migrations could disrupt or delay project activities

Ongoing risks – open, can be influenced (these would be relevant if there was further development work):

- Data security risk (well-mitigated through secure infrastructure design)
- Using new technologies might not produce quality/accurate outcomes and/or lack of understanding of capabilities/appropriate application to practice
- Legal risk relating to the funding agreement
- Records that are currently restricted for particular staff in liquid logic case management system will be able to be viewed through the search tool (e.g., technical the solution that is in place restricting some records has not been replicated) *(NB: project was a proof of concept and not implemented so no users have access to it)*

- Practitioners might use new search technology to circumvent existing restrictions and access information about people that they are not entitled to access *(NB: project was a proof of concept and not implemented so no users have access to it)*
- Issues with the source data may prevent some goals being achieved
- Practitioners may not be able to navigate from the tool back to source documents
- Skills and knowledge gap and the provision of consistent guidance in developing areas, this is linked to the pace of innovation in technologies, including how this interacts with information and data governance (e.g., cultural shifts about legal basis for data processing/sharing - consent vs public task)

42

- There is a risk associated with data fragmentation, where data assets are split it can cause multiple problems (nothing that data is fragmented at source the work was looking to mitigate this). Examples include:
- Data fragmentation linked to technical challenges around filetypes that cannot be processed by AI services (including .doc files which make up 25% of the overall documents)
- Solution to overcome character limits has not been fully tested
- Presenting information in a new way and the inclusion, exclusion or prioritisation of particular information which may not provide a fully accurate picture or may not be a fair representation
- Updates from Microsoft could result in the need to reconfigure/re-build some or all of the components (e.g., the current solution may become unsupported) and/or a lack of awareness that updates applied by Microsoft might affect ethics or data governance impact assessments
- Press coverage around use of Artificial Intelligence

Ongoing risks – open, little or no ability to influence:

- Known risks associated with artificial intelligence/machine learning tools/processes, such as:
  - They can produce inadvertent algorithmic biases and inequalities
  - Distribution/dataset shift can occur where a machine learning model is deployed on a data distribution that is different to what it was trained on

New risks identified at closure (linked to potential future work):

- Errors made when importing large volumes of historic data could re-incur processing costs

- There is a risk that recommendations from the Evaluation are not considered as part of further development work

4.4.8 Feasibility summary

There is still significant development work to do to refine and iterate the products. The evidence for data retrieval and ecomaps presented at Section 4.4.2 (Evidence – Time Spent on Data Retrieval Task) and Section 4.4.3 (Evidence – Children's Networks) shows significant improvements in terms of data retrieval tasks completed faster and expanding children's networks, however this was based on a very small sample. This was unavoidable as the scale and duration of the pilot groups were tailored to something proportionate and appropriate to the stage of the development of the tool, and the timescales of the project. The benefit of gathering feedback from users at an early stage in development is that this is aligned with co-production/user-centric design principles.

Feedback from users at pilot workshops was very positive, and an evaluation of this is included at Section 4.3 (Evaluation of Expected Benefits).

There were no significant barriers or issues presented during the risk management process and mitigations developed were appropriate, thorough and effective.

This evaluation report and supporting documents including practice guidance, data factory documentation and the "packaged" versions of the data factory infrastructure and SQL Database could enable other organisations to set something similar up with minimum effort.

4.5 Acceptability study

Acceptability will be assessed through user feedback, User Experience (UX) assessment, reviewing project engagement, AI ethics, climate change and equalities considerations. Information in this section is intended to communicate whether stakeholders would support and use the product and draw out insights about how to shape the product for ongoing positive reception amongst stakeholders and benefits realisation.

4.5.1 Initial Feedback from Children's Social Care Locality Days

During the locality events whilst the tool was being presented a paper survey was conducted that included several qualitative questions about the first impression and ease of use of the tool (Appendix 3). Thematic coding of these responses was undertaken

The main themes from the survey responses were:

- **Feeling positive about the tool**

    "*Amazing and will be helpful in practice very excited of what's to come*"
    "*This was great and will help and save time*"
    "*Helpful tool will save time searching case notes and documents*"

- **Tool looks complicated**

    "*Looked confusing with all the lines*"
    "*Overwhelming with a lot of information*"
    "*Looked complex but I'm sure it will be easier when using*"

- **Training would be needed**

    "*Needs more explanation*"
    "*Will be helpful but would need more training*"
    "*I am very intrigued, I see huge benefit but need more information and training to use safely*"

The survey asked for suggestions of features that could be useful to include in future versions, the main suggestions were:

- Integration to other systems
- Identify professionals/family members relationships
- Dictation feature (for data input)
- Time/date feature (slider)
- Colour coding of data (to identify relationships or entity types)

In the survey, responses to the tool were predominantly positive, with over half of the participants expressing favourable sentiments. However, a smaller portion of respondents remained neutral. There were some concerns over the complexity seeing it for the first time, however this could be addressed through adequate training and more information. Particularly around data governance. The voice of the respondents was strong, and the feedback was overall positive.

A summary of the feedback is available at Appendix 12 (Locality Events Nov/Dec 2023 Summary of Questionnaire Feedback).

4.5.2 User experience assessment

Summary of considerations

Continuous feedback and iterative improvements are crucial for enhancing the usability and effectiveness of the tool. *Recommendations are underlined in the text below.*

Colour key Once accessible colours have been determined, it's essential to include a key that clearly explains what each colour represents in the ecomap. This will enhance user understanding and facilitate interpretation.

Refine filtering functions The filtering functions within the ecomap tool should be refined to allow users to find relevant information quickly. Allowing users to tailor filtering options, or selectively hide individuals they do not need to display could improve efficiency. These abilities would also improve the capability to generate shareable ecomaps.

Interactive circles Some participants expressed interest in clicking on the circles in the ecomap to access relevant documents and case notes. While this feature isn't currently available, <u>exploring the possibility of linking ecomap nodes to relevant information could enhance usability</u>.

Untangling complexity One participant noted that untangling the ecomap in the tool isn't as straightforward as it may seem. <u>It is recommended to conduct further usability testing to better understand how users interacting with the complex ecomap</u> can inform training materials and sessions, ensuring effective take-up amongst practitioners.

User familiarisation/differentiate Power BI elements <u>Ensure clear differentiation between Power BI elements and the specific features within the tool</u>. During testing, accidental filter selections occurred without user awareness, leading to unclear outputs. Providing visible feedback when an item is selected and clearly indicating filtered elements (especially if results on one page affect another) can enhance usability.

AI confidence slider presentation <u>Refine the presentation of the AI confidence slider. Consider using buttons like "low," "medium," and "high" to convey decision confidence. Tailor default settings based on user confidence levels and team preferences</u>.

Timeline function Participants expressed excitement and interest in the timeline function. <u>Consider making document links within the timeline clickable</u>, connecting them to the relevant documents and notes page. <u>Clarify whether the timeline dates reflect the event occurrence or the recording date in LiquidLogic</u> <u>(as they may differ).</u> Adding a note or banner can address this. Further testing and usage will help improve the timeline's functionality, especially for cases involving long-term service involvement with children.

Differentiating children with similar names When multiple children share the same name, differentiation becomes challenging. <u>Explore ways to differentiate children with similar names</u>, e.g., adding the child's age next to their name or indicating their location.

Gender identity representation Participants discussed gender identity representation. <u>In cases of name and gender changes, clarity is crucial</u>. Consider showing dates when different names appear (e.g., on the data insights page).

User familiarity impact This refers to a potential link with a variation in ease of use based on participants' familiarity with the child. <u>Consider user familiarity impact during further testing rounds and application to practice</u>, as it may affect users' confidence with the tool.

UX Notes on Benefits

Time savings

Users expressed positive feedback regarding time savings, especially during document searches and reading. <u>The tool's ability to quickly highlight existing information represents a significant improvement over current processes.</u>

Information abundance

Participants appreciated the wealth of information presented. Allowing users to filter down to their specific needs was well-received. <u>Further enhancements in search and filter functions could optimise this experience.</u>

4.5.3 User Feedback from Evaluation of Expected Benefits

Key benefits of the tools that users highlighted included being able to streamline their search process by finding documents and case notes in chronological order, which saves time by locating relevant information faster. Being able to quickly identify whether a document exists or not is a valuable benefit as it will reduce frustration and save time spent on unproductive tasks. The elimination of the need to download documents to

view its contents would reduce reading time and increase productivity. Enhanced ecomaps that provide more detailed information about connections and relationships within networks could assist practitioners in their decision-making processes and assessments. Multi-agency meetings could benefit from quicker identification of connections and relationships.

4.5.4 Project Engagement

Throughout the project lifecycle opportunities to share the journey, consult on obstacles, learn from best practice and invite challenge have been maximised. This included:

- Department for Education Data & Digital Solutions (project 2b) Show and Tell
- Department for Education Data & Digital Solutions Fund Forum
- Coram I Innovation Incubator Programme – two open webinars and one in-person event
- Local Government Association digitisation event
- Foundations (consultation on format for evaluation)

There has been significant interest in the project in 2023/24 and learning has been shared with the sector through regular open webinars, facilitated by Coram I. These webinars along with contacts through professional networks have led to several 1:1 meetings with leaders in innovation, children's social care, technology and other areas to brief them on the work, share learning and answer questions. Some of these have been:

- Barnardo's
- Lancashire Council
- Southend Council
- Redbridge Council
- Disclosure and Barring Service
- Oxfordshire Council
- LeadingAI
- Palantir
- Iese
- Sir Anthony Finkelstein
- The Local Government Association
- Change Network
- The DfE Adoption, Family Justice and Alternatives to Care Division
- The Association of Directors of Children's Services
- Microsoft
- Norfolk County Council
- Action for Children

Finalist for the Frontline Award for Innovation, this event was in May 2024. The person nominating said "It's not often in my career that I've come across a project that has the potential to make such a positive and significant difference to Social Work operations and to the amount of time that we are able to spend working directly with families"

Winner of iStand award at the iNetwork Awards 7 March 2024, this is an award for a public sector organisation that could demonstrate innovation and achievement in the effective use of data and information standards to improve services, to enable information transparency and/or enable common understanding of a key issue.

Microsoft Customer Journey, Microsoft selected the project as the sole public sector example for their global expos. This involved creating a 'customer journey video' showcasing the project, this recognition elevates the visibility of this innovation and is seen as an exciting opportunity to share the success with a global audience. The project was selected because it was considered to be driving meaningful outcomes for the children and families. The work demonstrates the transformative power of technology, but also was an inspiration to other organisations striving for innovation and progress, especially when it comes down to

improving the lives of others in such an impactful manner, with opportunities to develop and realise continued impact.

Summary of Project Engagement

Widespread and significant interest across a variety of stakeholders demonstrates that there are multiple use cases for this type of technology, which would likely be supported and used across different types of organisations. Receiving an award for effective use of data from a body who specialises in public sector data indicates that there is an appetite for implementation of this type of technology in order to realise benefits, for children and families as well as organisations. Microsoft selecting the project to showcase on a worldwide scale demonstrates a level of confidence in the work as well as the significance of this innovation and the opportunities it presents.

4.5.3 AI Ethics Impact Assessment

As part of the emerging approach to use of AI in the Public Sector and specifically at NYC, the project team engaged with the research available that tracks and understands the public attitudes to AI. This helped in understanding how acceptable people find AI and in what contexts as well as informing the relevant guardrails needed to ensure people feel these new technologies and practices are implemented appropriately, this learning was fed into an evaluation of this work through the AI Ethics Impact Assessment. Research that the project team referred to included:

- Public attitudes to data and AI: Tracker survey (Wave 3) - GOV.UK (www.gov.uk) [14]
- https://attitudestoai.uk/findings/benefits-and-concerns from the Alan Turing Institute [15]
- AI Fringe — 30 Oct – 3 Nov 2023 People's Panel recommendations [16]

The Public attitudes to data and AI: Tracker survey showed the top concerns are around users losing control, a loss of creativity and problem-solving skills and AI taking people's jobs [14]. The AI Fringe was a series of events organised to complement the UK Government's AI Safety Summit and included a "People's Panel". Taking forward the key themes from the People's Panel will help organisations ensure that benefits outweigh concerns. This includes:

- Clear governance
- Training and support to use AI
- Raising awareness across an organisation
- A continuing conversation on AI that is inclusive and transparent
- Collaborative approach to realise ways of working where AI is used to enhance and balance human need [16]

This project fed into wider work NYC was doing at an organisational level. As an organisation the approach was to move beyond the hype and learn about the risk and opportunity in practice, ensuring human agency is kept at the forefront and looking to see where and how AI, as part of our work, can add value. The guiding principles being "Informed, Ethical and Useful". An AI Ethics Impact Assessment was developed and trialled effectively on this project. The format of the assessment was considerations under the following areas:

Key points from the AI Ethics Impact Assessment for the project are below:

- Using AI can unlock access to much more of the data we hold and could improve decision making, dignity and freedom, especially as it maps and visualises the data in a child centred way.
- We can shape the AI to work for good and improve our application of the right kinds of practice standards.
- The AI will support decision making, not do the decision making itself and the social worker will always be in charge and accountable. No autonomy will be passed to the machine.

- There is risk, including from poor data quality and also from complacency in using AI, guidance should support staying rigorous and ensuring all decision making is transparent.
- AI may get things wrong and may be biased, we need to constantly be vigilant and check the workings of AI to ensure we remain happy and have high degrees of confidence.
- We can focus the AI on helping with time saving activities and it adds to the social work competencies to work in this way, the skills and knowledge remain with social work.
- This tool and our approaches to AI are still developing, we will need to have ongoing monitoring to check we remain happy with how things work.
- The system will only be accessed by appropriate people and an audit trail will be established.
- Accountability and responsibility for the sensitive data included is well understood by its users and those accessing it.

A copy of the AI Ethical Impact Assessment is included at Appendix 13.

4.5.4 Equalities Impact Screening

A screening process related to impact on equalities was undertaken, this resulted in confirmation that there was no need for a full impact assessment due to no particular impacts being identified.

The main discussion point was about how gender is reported in the tool, and it was agreed for consistency to use the same categories as source system. It was noted that the source system was not yet reflecting the most recent guidance from central government.

A copy of this Equalities Impact Screening is included at Appendix 14.

4.5.5 Climate Change Impact Screening

A screening process related to climate change impacts was undertaken, this resulted in confirmation that there was no need for a full impact assessment due to no particular impacts being identified.

A copy of the Climate Change Impact Screening is included at Appendix 15.

4.5.6 Technical and Practice Guidance

A document collating technical information/guidance has been drafted and is included at Appendix 4.

Components include:
- Technical architecture and infrastructure
- Creation of Azure cloud resources
  - AI Service
  - SQL server/database
  - Storage
  - Data Factory
  - Vnet/Private End Points
- Database elements
  - Configuration
  - Tables
  - Views
  - Stored Procedures
  - Functions
  - Indexes
- Data Factory Pipeline elements
  - Configuration
  - Linked Services
  - Integration Runtimes
  - Datasets
  - AI Skills (synchronous and Asynchronous feeds)
    - Optical Character Recognition
    - Entity Recognition

48

- o Error processing
- o Database writes/updates/inserts
- Power BI
  - o Database connectivity to Azure Sources
  - o Visualisations
- Code

A document collating technical information/guidance has been drafted and is available at Appendix 4 (Data Factory Documentation). This reflects technical information and learning from the pilot project and development of the version of the prototype that was tested by users at pilot workshops in February and March 2024.

Packaged technical elements have been prepared and included, these are a starting point and would require manual work by someone with the ability to configure connection strings and user IDs within the scripts in order to successfully deploy. This is because:

- Private data (e.g., account names, connection strings, URLs) has been removed from them and relevant local details would need to be provided for deployment
- Currently some refer to email addresses/groups within North Yorkshire, and may fail on deployment

The SQL database is available as a DAC Package (see Deploy a Data-tier Application - SQL Server | Microsoft Learn) [10] – this is a single .dacpac file, this would typically be deployed using SQL Server Management Studio. Appendix 5 (SQL DAC Package).

Data Factory clone is available as an ARM template (see Copy or clone a data factory in Azure Data Factory - Azure Data Factory | Microsoft Learn – follow the steps for point 3: "Live Mode") [11], the ARM template would be deployed via the Azure Portal. This is a small number of .json files. Appendix 6 (ARM template for Data Factory Clone Zip).

Practice guidance

A very early version of the prototype was introduced to users at Locality events. More details are included at Section 3.3 (Introducing the Prototype - CSC Locality Days) and Section 4.5.1 (Initial Feedback from CSC Locality Days). Feedback received at these events led to the inclusion of data governance considerations in the practice guidance. The project team worked to embed points from the impact assessment process into the practice guidance. The guidance was circulated to those attending pilot workshops and used as the basis for introducing the product to attendees at the workshops.

Attendees had the opportunity to go through it in the workshop and provide feedback.

Front door team: "This user-friendly format will serve as a timesaving and valuable reference, particularly for those less familiar with technology. It's a resource we can confidently revisit in the future".

Early Help: "The use of colour is helpful, and the inclusion of numerous images enhanced our understanding".

Adoption: "Using this document alongside the tool will be very helpful."

Leaving Care: "This document is easy to understand and follow, will be good to revisit if needed in the future."

Whilst the practice guidance developed for this project has been made consistent with other practice guidance available to CSC practitioners at NYC in terms of format and presentation, the contents would be transferable to another local authority.

A copy of the practice guidance is available at Appendix 16 (Practice Guidance AI Tool).

49

4.5.7 User Confidence

During the pilot workshops attendees were asked the question "Overall do you agree with this statement 'I am confident that the information presented by the tool is accurate'". The responses to this question were positive. Attendees had high levels of confidence that the information was accurate, noting that it was the same information that was in the source system.

4.5.8 Acceptability summary

The following comments can be made related to acceptability. It should be noted however, that there is still significant development work to do to refine and iterate the products. When this has been achieved a larger scale pilot could be undertaken to better understand levels of acceptance and user satisfaction. This could also be expanded to take place with other datasets and in other areas of the Local Authority for a broader understanding and comparison.

The feedback from UX provides detailed recommendations about how to shape the products for better reception amongst users. UX noted that the tool's ability to quickly highlight existing information represents a significant improvement over current processes.

Attendees at pilot workshops had high levels of confidence that the information presented by the tool was accurate, noting that it was the same information that was in the source system.

The level and variety of interest and support received during the project lifecycle indicate that it would likely be well-received by different types of organisations. The level of engagement, including the selection by Microsoft to showcase and the recognition through the receipt of an award for effective use of data and innovation validate that the concept is well supported across innovation, technology and Social Care sectors.

Research helped inform the ethical impact assessment for the project, this includes how people feel about AI (AI attitude). Given the specific research and work with professionals in this space it is clear that the benefits can outweigh concerns, as long as the AI is controlled and clear.

There were no serious risks or barriers identified in terms of impact assessments and screenings for:

- Data protection
- Climate change
- Equalities
- Artificial Intelligence Ethics

It is noted that there could be positive impacts especially around cultural shifts in data governance and ethical use of data for the benefit of children, families and organisations. The wider Public Sector, Local Authority and Social Care sectors are currently developing their approach to use of AI in practice. This is both in real terms and to inform the strategic direction of innovation and ideation of what services in the future look like. This project should contribute to this debate and emerging approach. The project gives confidence about AI in practice and informs the ethical and practical guardrails required to ensure practice remains safe and person centred. Further work could be done to engage with children and families to understand their views about using data in this way.

The technical guidance including packaged elements would help to ease the deployment effort for another organisation and could improve acceptability amongst other Local Authorities, especially where significant capacity and budget pressures exist. Users had a high level of confidence that the information was accurate, noting that it was the same information that was in the source system.

User feedback was collected at an early stage and throughout the development. Comments from practitioners and subject matter experts, including considerations from impact assessments, have helped in developing the practice guidance. Feedback on the guidance that has been developed from practitioners was

positive. The contents of the practice guidance would be relevant to other Local Authorities and is transferable.

4.6 Next steps/recommendations

Further Development:
- Work to implement the next steps from requirements analysis at Section 4.1.4 (E.g., enhance audit trail, finalise data refresh, LiquidLogic forms, expansion to other datasets including through work to define data standards)
- Work to implement recommendations from User Experience
- Test implementation based on documentation produced for other appropriate use cases

Independent Evaluation:
- Validate and assess the key hypotheses at Section 2.1.3
- Track the tool over one year (understand what improvements are required first and implement them, as per recommendation above). In this time look to particularly understand:
    o If there is a requirement for data matching
    o Costs – costs to run when new data is being added and support costs
    o How it is used by users

Data Entry/Data Quality E.g., work towards defining the data standards which would be helpful to embed:
- Update the filetypes being added to LiquidLogic (do not allow .doc files, these should all be .docx)
- Explore input methods (audio/transcriptions, photo, video)

Information Security: The pilot included consultation and implementation of best practice technical infrastructure to ensure information security, there could be further work to validate the information security approach

Data Governance:
- An Information Asset Owner is defined and the Information Asset Register updated
- Consider consultation with ICO on data governance/DPIA
- Consider consultation with children and families on use of data, this relates particularly to further development as data governance considerations would change when opportunities are explored

References

[1] Children in need, Reporting year 2023 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

[2] The Independent Review of Children's Social Care – Final Report

[3] https://www.gov.uk/government/publications/local-authority-interactive-tool-lait

[4] Longitudinal study of local authority child and family social workers (Wave 5) (publishing.service.gov.uk)

[5] 60% of social workers have work affected every week by case management system (communitycare.co.uk)

[6] Council Plan for North Yorkshire Council 2023 to 2024

[7] Agenda for Executive on Tuesday, 20th February 2024, 11.00 am | North Yorkshire Council

[8] Ofsted Inspection of North Yorkshire local authority children's services

[9] Children's social work workforce, Reporting year 2023 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

[10] Deploy a Data-tier Application - SQL Server | Microsoft Learn

[11] Copy or clone a data factory in Azure Data Factory - Azure Data Factory | Microsoft Learn

[12] Data Protection Act 2018 (legislation.gov.uk)

[13] Children looked after in England including adoptions, Reporting year 2023 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

[14] Public attitudes to data and AI: Tracker survey (Wave 3)

[15] The Alan Turing Institute How beneficial do people think AI technologies are, and how concerning?

[16] AI Fringe — 30 Oct – 3 Nov 2023 People's Panel recommendations

[17] Paying the Price (The Social and Financial Costs of Children's Social Care) - The Independent Review of Children's Social Care

Appendices

Appendix 1 – Outputs from case studies with different areas of CSC

Appendix 2 –Baseline Survey Questions Tell Us About Your Experiences of the Current Case Management System

Appendix 3 - Locality Events Questionnaire Thoughts and Reflections on the Search and Ecomap Tool

Appendix 4 - Data Factory Documentation

Appendix 5 - SQL DAC Package (.dacpac)

Appendix 6 - ARM template for Data Factory Clone Zip

Appendix 7 – Ecomap Manual Validation Example

Appendix 8 – Baseline Survey Charts Illustrating Views on Existing Case Management System

Appendix 9 – CSC Tasks and Costs

Appendix 10 - Social Worker Safety Plan Scenario

Appendix 11 – Data Protection Impact Assessment

Appendix 12 - Locality Events Nov/Dec 2023 Summary of Questionnaire Feedback

Appendix 13 – AI Ethical Impact Assessment

Appendix 14 - Equalities Impact Screening

Appendix 15 – Climate Change Impact Screening

Appendix 16 – Practice Guidance AI Tool