Data Strategy 2022-2024

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Lancashire County Council

1 Executive Summary

Data impacts Local Government. Whether it's protecting vulnerable children, supporting older people to return from hospital independent and healthy, maintaining the highways or helping local business to grow, data can help the council deliver better services. Making best use of the **data assets** that council collects and stores making services more effective, reduce costs, increase productivity, and support the local economy.

As part of the Lancashire County Council's aspiration to become a more data driven organisation we should make better use of data to drive out efficiencies, improve transparency and support decision making going forward.

- Silos of data exist across the organisation and, whilst they support their primary functions, opportunities have been missed to fully exploit it because data within the council (and between other organisations) are often incompatible for connection, sharing and wider re-use for other purposes.
- The people and cultural attitudes to data also contributes to a silo mentality in not sharing mastered data.
- Lack of data standards make it difficult to integrate data sets to provide more comprehensive information.
- The quality of data is often unknown or questionable, leading to local interpretation of what the data means sometimes based on 'gut feeling', rather than evidence based insights
- We do not have a clear policy that establishes governance arrangements and business processes around ownership and usage of data.
- Inconsistent creation, maintenance and control of the same key data in multiple places leads to problems.
- Data is often extracted from core systems, held insecurely and then further manipulated, leading to more cost and further potential inconsistency and increasing the risk of non-compliance to GDPR.

To implement the **Data Strategy** the council needs to build on four key data capabilities which are underpinned by these principles:

- Implement a **Data Governance** framework
- Define and build a council wide **Data Architecture**
- Implement a **Data Management** capability which is at the core of the **Data Architecture** and supports the **Data Governance** Framework
- Implement a set of **Business Intelligence and Analytics tools**

2 Introduction

A High Level **Data Landscape Review** has been undertaken commissioned in 2018 to assess the current data maturity level and to capture how LCC wishes to improve the data capability across the organisation to align to the council objectives. The review was also to include an outstanding high-level data improvement plan to move the council towards these objectives. The review included:

- Determine the high-level objectives in relation to the organisation's data
- Gain an understanding of current data and data management issues
- Document where the council wants to be in terms of its data capability ("to-be")
- Perform a data maturity assessment across("as-is"):
    - People and culture
    - Business processes
    - Data activities
    - Technology
- Perform a gap and risk analysis between the "as-is" and "to-be" states
- Develop an Improvement Plan to address the gaps and produce a draft data architecture model and documented data patterns
- Produce a set of draft corporate data principles

This document is the culmination of the landscape review, and describes how LCC should approach the 'data challenge'. It is based on extensive research into public sector and industry best practice, alongside information gathered from workshops with Digital Services colleagues and LCC Business Intelligence team.

3 Defining the Business Context for Data

Information is essential to the efficient delivery of high quality public services.

The Data Strategy directly supports the corporate priorities across key areas

Delivering better services

- Provide services that are effective and appropriate to local circumstances
- Improve services by changing the way we do things
- Help people and families live healthier lifestyles and enjoy a better quality of life

The Data Strategy recognises the county council's Digital Strategy of which the key priorities are:

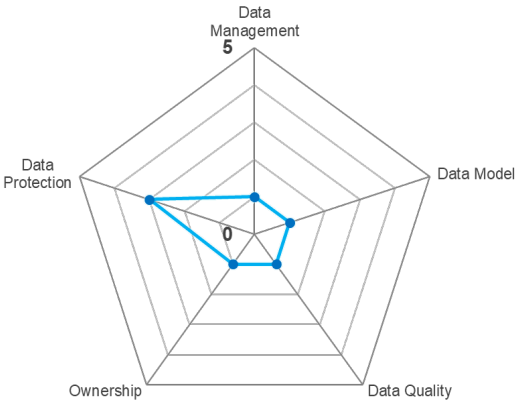
- Become a digital first council
- Embed a digital culture across the organisation
- Transact and interact with our partners digitally
- Build a stronger Lancashire economy
- Become more data driven
- Explore new digital technologies

The successful implementation of the data strategy will enable the council to deliver benefits to the citizens, partners and businesses of Lancashire. At a strategic level information is needed to make evidence-based decisions as well as ensuring accountability to the citizens of Lancashire. At an operational level, information can be used to drive efficiency and service improvement – enhancing service delivery, whilst at the same time reducing waste and improving value for money.

An established strategy underpinned by robust data and information governance framework will also enable the council to meet its statutory and legal obligations in relation to data in a more cost-effective manner by reducing the costs associated with data collection, manipulation and publication.

4 Current Position

As part of the data review Data Services have adopted much of the research and recommendations undertaken by the review in 2018, working with the Core Systems Team and Business Intelligence Team, completing workshops using the data improvement toolkit detailed in Appendix A to perform a high level data maturity assessment to assess the current situation. Information from a separate corporate landscape review of reporting was also fed into this assessment.



0 = Chaotic
1 = Reactive
2 = Stable
3 = Proactive
4 = Predictive

KEY	
Data Model	Models and definitiond to promote corporate standards
Data Quality	Quality measures and how quality is assessed
Usage and Ownership	Governance including ownership and stewardship to manage usage and access
Data Protection	Security and protection of data and information in relation to relevant legislation
Data Management	Managing data in terms of quality, disposal of, quality and joining up information

The output of the review was also fed into the Local Government Association (LGA) data maturity online assessment tool, this reported an overall assessment of BASIC (between Chaotic and Reactive) and described organisations with this level of maturity typically have the following characteristics:

- Data remains largely used and managed in silos across the organisation, quality is not well understood and it is difficult to integrate data sets in a useable way.
- Information governance concerns prohibit most sharing of data. There is some ownership with responsibility for specific data sets but accountability for agreeing new uses and access is done on an ad hoc basis.
- There is scope for data to be used to support decision making and operational processes but limited take up.
- There is a small amount of data analytical capability available in the organisation.
- There is emphasis on the use of data at an organisational strategy level, but senior officers have not championed its use consistently.

5 Data Architecture

The data architecture is a key enabler in implementing data management and business intelligence.

The benefits of defining a data architecture are as follows:

- It provides an unambiguous view of the organisations data that can be used to assess the impact to the organisation resulting from changes to the data.
- It can be used to define cost, effort and business benefits to ensure changes are affordable and architecturally sound.

The data architecture will deliver a "Corporate Data Model" consisting of:

- Undertaking data landscape review as data demands reach digital services provides the authority with informed choice of the most appropriate data management tool. This will allow the business to capture the data requirements for business processes to gain a full understanding of the organisation’s data.
- The physical data model provides a detailed and clear definition of how data is stored within the council's core systems.
- A corporate data dictionary with standard definitions to a common vocabulary across the organisation

6 Data Governance

The implementation of a Data Governance framework with the responsibility for effective data management, ensuring that data is high quality, accurate and reliable is important. Data Governance has the same relevance as Information Governance but the primary focus is around data management and quality rather than just protection.

The Data Governance team will have overall responsibility and ownership for the council's data architecture and data management.

7 Data Management

The data management capability will ensure that the council's information assets are stored, protected and can be exploited according to its value.

It will ensure that data is of good quality and fit for its primary and potential secondary/tertiary purposes. Information quality factors such as accuracy, validity, reliability, timeliness, relevance and completeness will be measured and monitored.

Data management will comprise of three core capabilities:

- Information Lifecycle Management (ILM)
- Master Data Management (MDM)
- Data Quality Management (DQM)

These capabilities support improved data integration and data quality realised through the introduction of business processes, automation and technology.

8 Business Intelligence

Business intelligence is of vital importance to consider as a distinct theme in addition to standard data management activity.

A mature and well established data management capability will provide the foundations for the introduction of a corporate Business Intelligence environment which will support the council to:

- make best use of our information assets for operational monitoring and reporting;
- strategic performance monitoring; and
- corporate decision making and forecasting.

9 Data Principles

This strategy will use data principles established in the UK Government Information Principles for the UK public sector - 2012. These are derived from industry standard Enterprise Architecture best practices.

Note 'Information' is used rather than 'Data' to shape the principles around the value of the data

The hierarchy is important as the principles build on the current data position.

9.1 Information is a Valued Asset

Information is an asset which is fundamental to the efficient and effective delivery of public services. This principle emphasises the importance of an organisation understanding the

information that it uses and valuing that information in business terms. It draws the parallel with other organisational assets (e.g. buildings, machinery, people, money) - highlighting the need for information to be understood, recorded, valued, protected and exploited like any other organisational asset.

Information has a purpose, and in order to fully understand its value it is necessary to understand the purposes for which information is created and managed. This includes consideration of both the original purpose for which information is collected and also, as far as can be anticipated, any subsequent downstream uses.

9.2 Information is a Managed

Information assets are stored, managed, protected and exploited in a manner commensurate with their value. This requires consideration of the lifecycle through which all information moves – for example from identification of need, creation, quality assurance, maintenance, re-use, and ultimately to archiving or destruction once it has ceased to have a business use.

A range of information management best-practices need to be applied throughout the lifecycle - for example to ensure appropriate availability and integrity, to avoid exposure and loss, and to ensure continuity across technology upgrades. It is particularly important that personal data is adequately protected. Furthermore information needs to be governed as it moves through its lifecycle ensuring, for example, clarity as to who is responsible for it (i.e. an identifiable owner), and compliance with all relevant legislation and regulation. The consistent assessment and ownership of information risk is another important consideration.

In order to apply these best-practices it is necessary that a suitable organisational culture be established, and that those processing information are professionally qualified and skilled to do so.

This principle therefore also includes the processes, roles, responsibilities, training, and organisational structure and culture needed to ensure the effective and efficient use of information in enabling an organisation to achieve its goals.

9.3 Information is fit for Purpose

Having considered the purpose of information in Principle 1, it is important to ensure that information is of sufficient quality to meet the purpose for which it is intended. This includes both its primary purpose and also any additional secondary purposes to which it might also be put.

Furthermore, in an environment where information is widely reused and published, it may not always be possible for the originator to foresee all potential downstream uses. Therefore

information quality needs to be communicated consistently to those that may wish to re-use it, so that they can objectively judge for themselves if it is suitable.

The aspects of quality include factors such as accuracy, validity, reliability, timeliness, relevance, and completeness. The actual quality of information should also be regularly monitored to ensure that it at least meets the levels that have been assessed as necessary for its purpose.

A further aspect of this principle is considering alignment between information and its supporting technical platform and format. For example, if information were to be needed for online statistical analysis then it would be inappropriate for it to be locked up in a proprietary legacy system, or stored offline on back-up media or only available in an unstructured PDF format.

This principle doesn't require information to be perfect, only that it is of sufficient quality for the intended use, and that its quality characteristics are advertised with the source itself.

9.4 Information is Standardised and Linkable

The opportunities for exploiting data greatly increase when it is made available in standardised and linkable forms. Standardisation is relevant both to structured information (e.g. in terms of dataset definitions), and also to unstructured information (e.g. in terms of the metadata tags applied to documents).

Some value is unlocked by standardising information within an organisation, however there is even more value in making information available using widely accepted Open Standards. Further value can be unlocked when information is made available in a form that can be linked.

Note that, as always, this principle builds on what has gone before. So Principle 2 establishes the need for appropriate governance over information linking - for example with regard to any privacy constraints. And Principle 3 highlights the need to take into consideration the quality characteristics of information which is being linked.

9.5 Information is Reusable

The value of data can be multiplied by re-use. This requires a change of mind set – to think outside of traditional departmental silos and proactively look for opportunities for re-use.

Re-use involves considering what information an organisation can make available to others, but it also involves looking at what others have on offer, and how an organisation might itself re-use this external information.

Whilst this principle strongly encourages re-use, it is important to appreciate that re-use does require a careful risk-based judgement to be made with regard to exploiting vs protecting information, as well as consideration to the costs and benefits involved, and any rights or other commercial considerations.

This principle again builds on what has gone before - as information re-use will not to be achieved to any significant extent unless information is effectively managed, strong governance processes are in place to manage the regulatory and risk-based implications of re-use, the information's quality characteristics and fitness for purpose are defined, and it is made available in standardised and linkable formats.

9.6 Information is published

Public information includes the objective, factual, non-personal information on which public services run and are assessed, and on which policy decisions are based, or which is collected or generated in the course of public service delivery. Public information should be published, unless there are overriding reasons not to.

Crucially, this principle goes beyond the minimum requirements imposed by legislation.

It advocates a proactive approach to publication of information – i.e. to presenting, formatting and promoting information in useful formats for wider consumption, without it needing to be specifically requested or mandated in legislation.

Clearly the desire to publish information does need to be balanced against constraints which may prevent this. Exclusions would include, for example, personal information, information which can compromise privacy, commercially and legally privileged information, and information that is required to maintain security.

However note that in some cases information which appears initially unsuitable may be reformatted for publication, as discussed under Principle 5.

9.7 Information is Accessible

Citizens and Businesses should be able to access information about themselves, along with an explanation of how it is used. This may be either on request or, preferably, by making it available by default. In effect, such information should be considered as belonging to the citizen, although entrusted to the care of a public body.

Note that this principle goes beyond the minimum requirements imposed by legislation. It advocates a proactive approach to allowing citizens to access information about themselves, without it necessarily needing to be specifically requested or mandated in legislation. This might be achieved, for example, by making it securely available online.

The employees of the council should also be able to access the data they require to fulfil their roles.

Clearly the desire to make information available does need to be balanced against constraints which may prevent this. Exclusions would include, for example, legally privileged information, and information that is required to maintain security.

10 Roles and Responsibilities

Lack of data knowledge and skills is a challenge for LCC and the retention of knowledge moving forwards

A data strategy should include attention to organisational roles by documenting who does what with the data, in order to facilitate collaboration and avoid duplication. Not everyone in an organisation uses data the same way, and their roles in data collection, management, and analytics will vary.

Three main types of users typically implement and enforce data strategy:

- Data engineers, who oversee the data pipeline and are responsible for building an efficient, reliable data architecture
- Data scientists, who work with data that the pipeline delivers
- Data analysts, who specialise in analysing and interpreting data

See Appendix B for a clear direction for our business to define roles and responsibilities

When coordinating roles, we should consider everyone in the organisation who uses data in any way, even if working with data is not a primary part of their job responsibilities. For example, an account manager who records customer information has a role to play in data collection, and a sales manager may need data analytics to help plan the next marketing campaign. Your data strategy should document the roles of each team member or group.

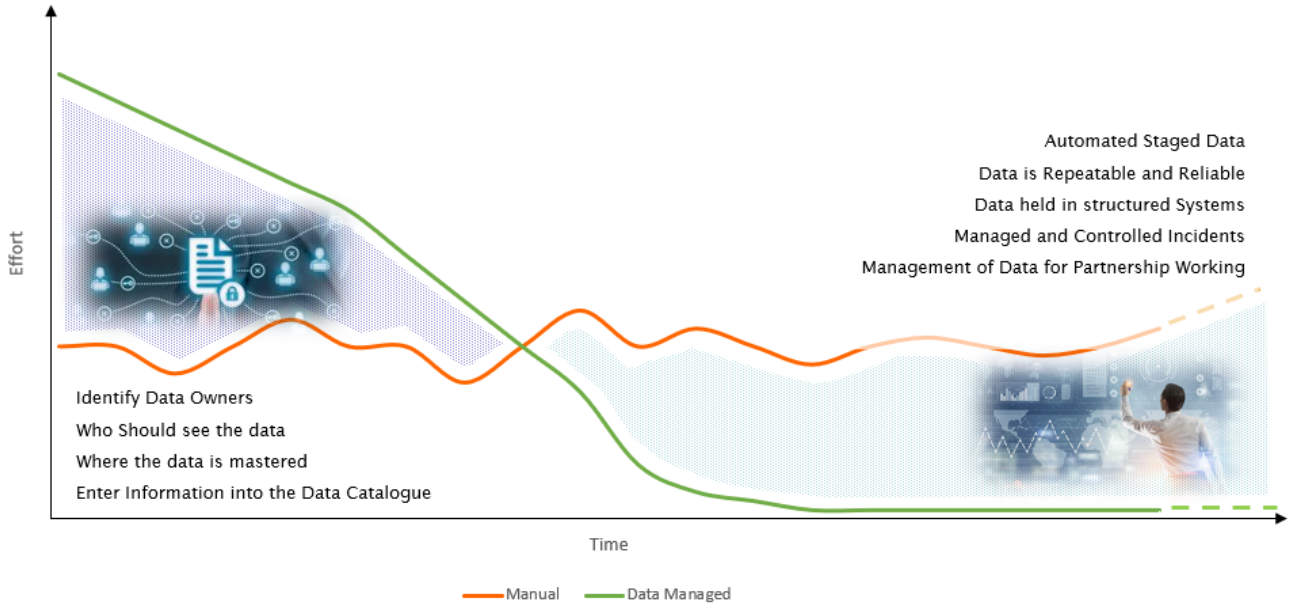
11 Recommendations and Next Steps

See Appendix A for clear direction of milestones to be attained in 2022

Delivering strategy will contain challenges but research has shown that it is possible. Looking at the lessons learnt and insights of other local authorities that have undertaken the challenge the key messages are:

- Start with a clear problem to be solved for which data can have real impact

- Engage support from senior leadership and continue to work to convince them of the importance of data to the organisation
- Start small and engage with end-users to find out how data could be used to make their day-to-day work easier
- Embed 'data improvement' activities in existing projects and initiatives
- Be clear about objectives and how these will be measured
- Adopt an incremental approach to building the **Data Architecture, Governance, Management and Business Intelligence** capabilities
- Ensure that realistic financial and staff resources are allocated to 'data improvement' projects and activities
- Approach the work through a series of short, repeatable work packages, working in an agile fashion
- Evaluate any data improvement activities against the original objectives



12 Key Resources

The ODI – Open Data Institute – Toolsets on how to manage Data

Data analytics | Nesta – Useful resources on what is happening in UK PLC and Local Government Sector

Publish and manage data - Data.gov.uk – Central Government mechanisms for managing data

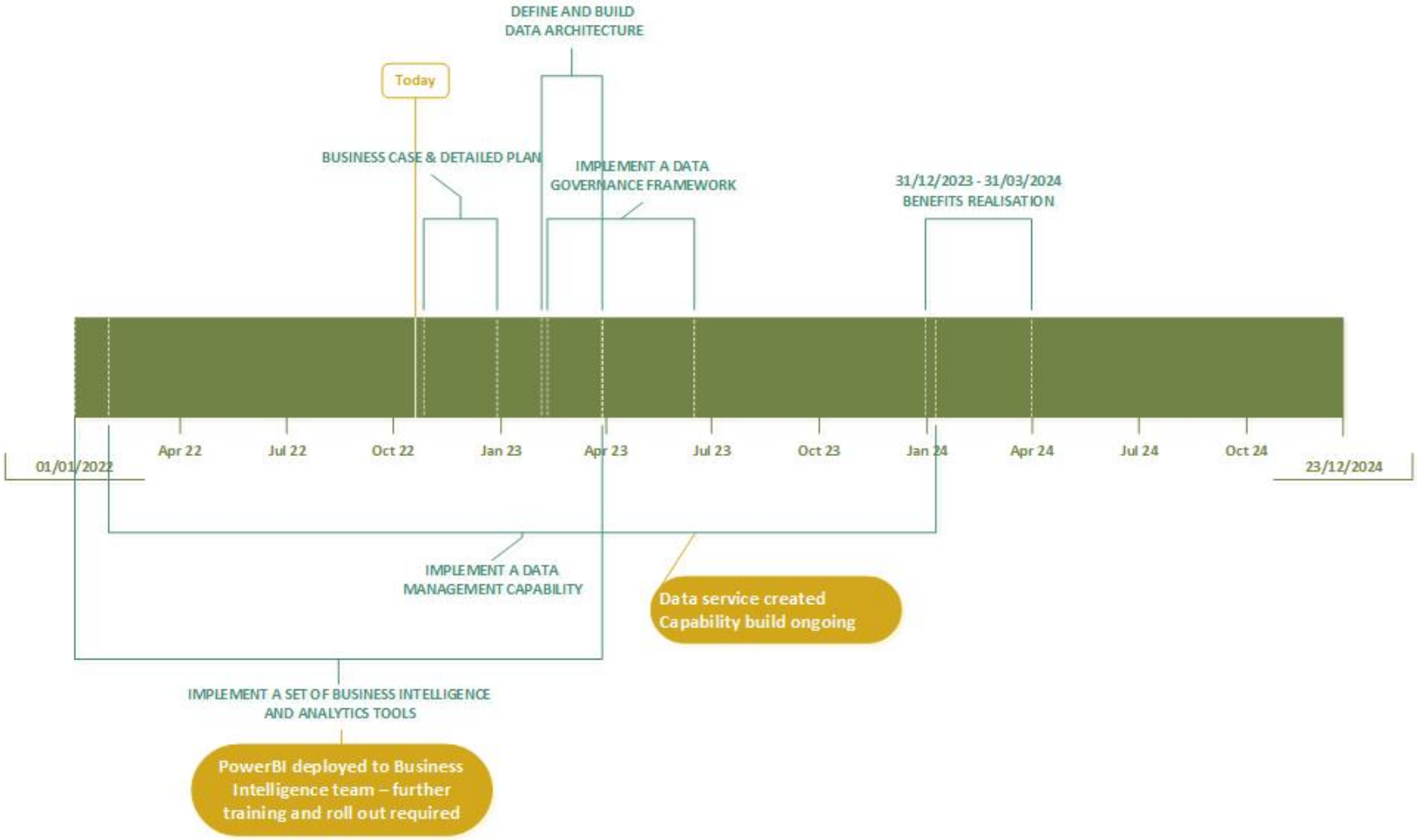
Home - Office for National Statistics (ons.gov.uk) – Resource for access to set of key datasets to underpin the wider use of data

Using a federated model for API discovery in government - Data in government (blog.gov.uk) – Emerging methods for sharing data

Develop your data and APIs using a reference architecture - GOV.UK (www.gov.uk) – Designing good data architecture in Local Government

Developing a data strategy and delivering it - Data in government (blog.gov.uk) – DWP Data Strategy Development

13 Appendix A – Overview Plan Timeline



14 Appendix B – Roles and Responsibilities

Every piece of data at source used and accessed via secondary technical capabilities such as BI / GIS must have a recognised owner and approver to ensure that the data made available to the wider community is valid and fit for purpose. Digital Services will provide the mechanism for maintaining a Data Catalogue which will highlight both Technical Officer and Approver before data is released into a production environment.

Platform Role

- Identify if the data architecture is best practice
- Identify if the data is used within BI or any other function
- Recognise the source system on the digital roadmap
- Provide advice and guidance on the solutions available to the end user
- Highlight technical roadmap and solutions available now and into the future
- Provide awareness of upgrade timetable
- Can use analysis tools
- Set out and promote robust data governance, liaising with Senior and Technical Officers as required
- Provide training plans/resources that meet the needs of the customer
- Design and implement applications and tools as required by the business

Technical Officer

- Have a clear understanding of what good data looks like and can either maintain or improve the datasets
- An awareness of changes or alterations to source systems and the roadmap of those source systems
- Can work with Digital Services to watermark and quality check outputs
- Define how the data should be used
- Define the frequency of updates against the dataset
- Undertake data management activities as defined by Senior Officers within their team service.

Senior Officer

- Sign-off on data that can be made available through the visual platforms
- Understand and appreciate the wide range of use cases and that the datasets may be used for additional purposes
- Engage with the platform capability on future technology roadmap
- Ensures compliance with Information Governance
- Promotes use of the platforms to support delivery of the services
- Understand the need and take responsibility for robust data ownership/management within their service.

15 Benefits of Data Ownership (Business Context)

Pros / Cons of Good and Bad Data – Understanding the contents below is not exhaustive but useful to try and summarise why individuals need to participate moving forwards

Benefits

- Data / Information can be trusted to make informed decisions – "One version of the truth"
- Data can be joined to other datasets to provide enriched information
- Colleagues do not need access to source systems
- Easier to maintain good data
- Logic understood to allow for ongoing data cleanse
- Metadata (information about the data i.e. currency, source, ownership) readily available and maintained.
- Intended use of data is clearly defined (how it meant to be used, what it should not be used for, who the intended audience is)

Risks to non-adherence

- Colleagues will stop using the information
- Colleagues must use several systems to confirm data
- No plan to keep on top of the data quality moving forwards
- Risk to service or services based on inaccurate data
- Greater opportunity to take post processing off-line and manage through spreadsheets
- Ownership of the data is not clearly defined (who is responsible for the data and defines how it should be used, who allocates resources to ensure data is maintained).