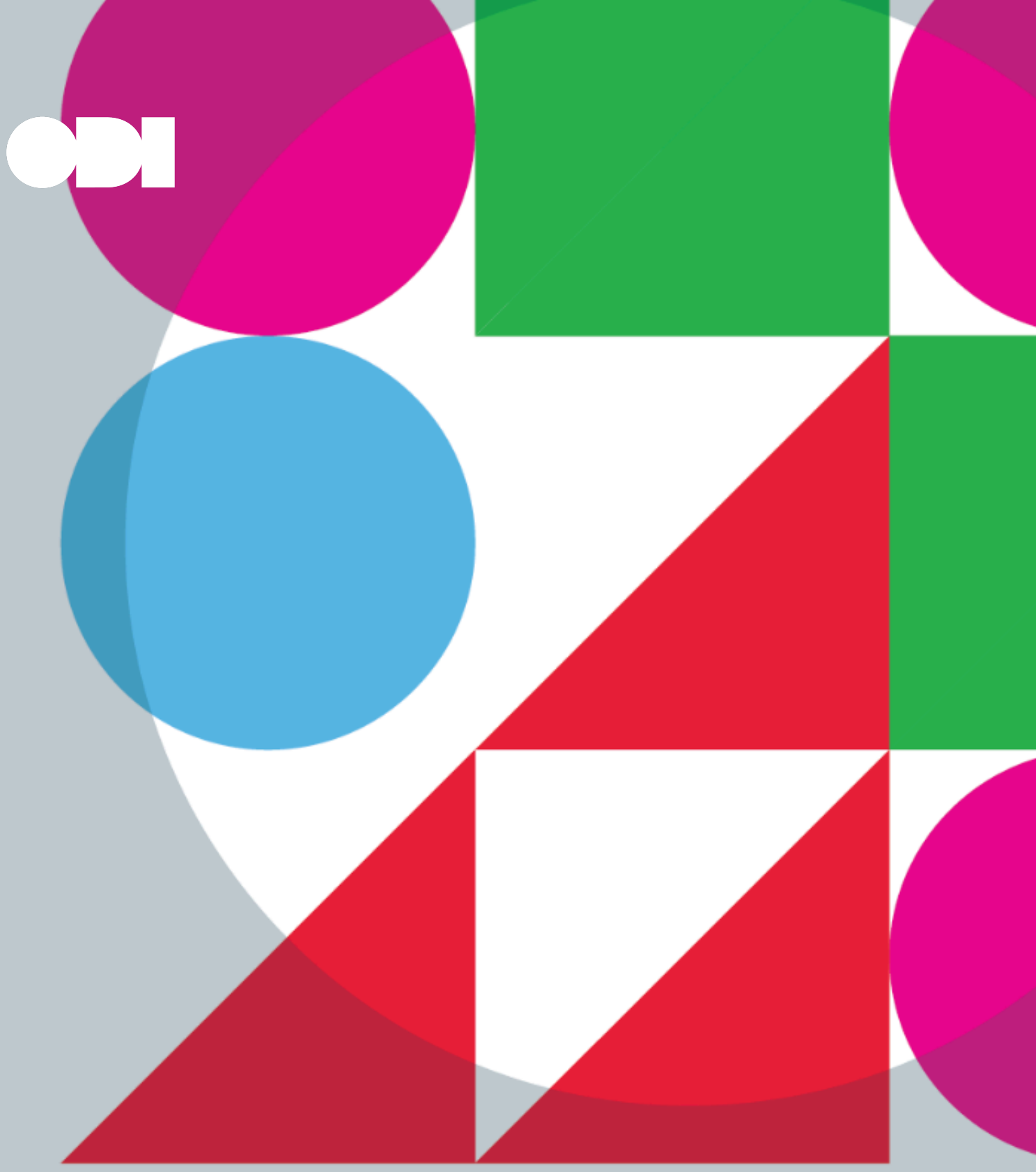

Open Data Maturity Model Guide

Contents

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How to view and download the Open Data Maturity Model

The Open Data Maturity Model is available to explore online and download at:
http://theodi.org/guides/open-data-maturity-model

You can also use the ODI Maturity Assessment tool to carry out an assessment using the model:
https://maturity.theodi.org

Executive summary

The Open Data Maturity Model has been updated into a second version by the Open Data Institute with funding from the Department of Science, Innovation and Technology (DSIT) **to help organisations assess how effectively they publish and consume open data.**

The model supports the assessment of operational and strategic activities around open data, provides guidance on potential areas for improvement, and helps organisations compare themselves against one another to highlight their respective strengths and weaknesses, adopt best practices and improve their processes.

The model is based around five themes, each representing a broad area of activity: **data publication processes, data literacy and skills, customer support and engagement, investment and financial performance and strategic oversight.**

Organisations can use the model to set themselves appropriate goals based on their current maturity, resourcing and anticipated benefits. To achieve the full, long-term benefits of open data, organisations must take steps beyond basic data publication, the assessment of open data publishing and consumption is a strong starting point.

While the original model was initially developed for a UK public sector audience, the updated model has been developed and tested with private sector organisations as well and leverages resources and experience from public and private sector, civil society and academia.

The key updates from the original model focus on maintaining global open data best practices, and include relevant thinking on data literacy, data ethics and responsible data stewardship.

Introduction

The Open Data Maturity Model has been developed to support organisations in assessing their effectiveness in publishing and consuming open data.

The model:

- Supports assessment of the effectiveness of an organisation in its operational and strategic activities around open data.
- Provides guidance to organisations on potential areas for improvement.
- Compares organisations to highlight their respective strengths and weaknesses, support wider adoption of best practices and help improve processes.

With these purposes in mind, the model can be used by both data managers working within individual business units and senior management with oversight on data management and governance practices.

The model should not add unnecessary burden to organisations that are publishing or reusing open data, rather, they can use it to set themselves appropriate goals based on their current maturity, resourcing and anticipated benefits.

To achieve the full, long-term benefits of open data, organisations must take steps beyond basic data publication. The assessment of open data publishing and consumption is a strong starting point.

Overview of the Open Data Maturity Model

A ‘maturity model’ generally provides a framework that allows an organisation to assess how well its processes conform to industry best practices. The model acts as an independent benchmark that allows organisations to score their maturity, usually in a number of related areas.

The Open Data Maturity Model has been designed to specifically focus on how open data practice impacts on an organisation.

A completed assessment against this model will give an organisation a **maturity score** for a number of important activities, namely **how data is released, how it is governed** and **how datasets are valued**. The score will reflect the maturity of the organisation’s processes in a specific area and can be used to identify areas of improvement and set measurable targets.

How is the model structured?

The Open Data Maturity Model consists of 15 organisational activities, eg data release processes or adoption of community norms, which are each explained in this paper.

The activities are grouped into five themes that categorise the activities. These have been derived from the categories used in a “balanced scorecard”[6] to assess and monitor organisational performance. This reflects the goal to assess the variety of ways in which open data practice may impact on an organisation.

Activities can also be grouped according to whether they relate to the publication of data, reuse of data or both of these areas. These are referred to as aspects.

The overall structure of the model is reflected in the assessment grid that accompanies this paper. We recommend that you review the grid alongside this document.

An organisation will assess its maturity against each of the activities in the model, producing a maturity score from 1-5 for each activity. These five **maturity levels** use names drawn from similar five-point schemes in other maturity models: initial, repeatable, defined, managed, and optimising.

Each of the maturity levels has a definition which describes the key characteristics of an activity occurring at that level. For lower scores, activities are likely to be ad hoc, while at higher levels processes will be more refined.

To help motivate organisations to progress through the levels of maturity, each of the

activities is associated with a description of the beneficial effects that follow from increased maturity in the activity.

The various elements of the model are covered in more detail later in the paper.

How does the model relate to existing work?

While there are other efforts to assess maturity of data management and governance practices, these existing models do not adequately address the issue of open data.

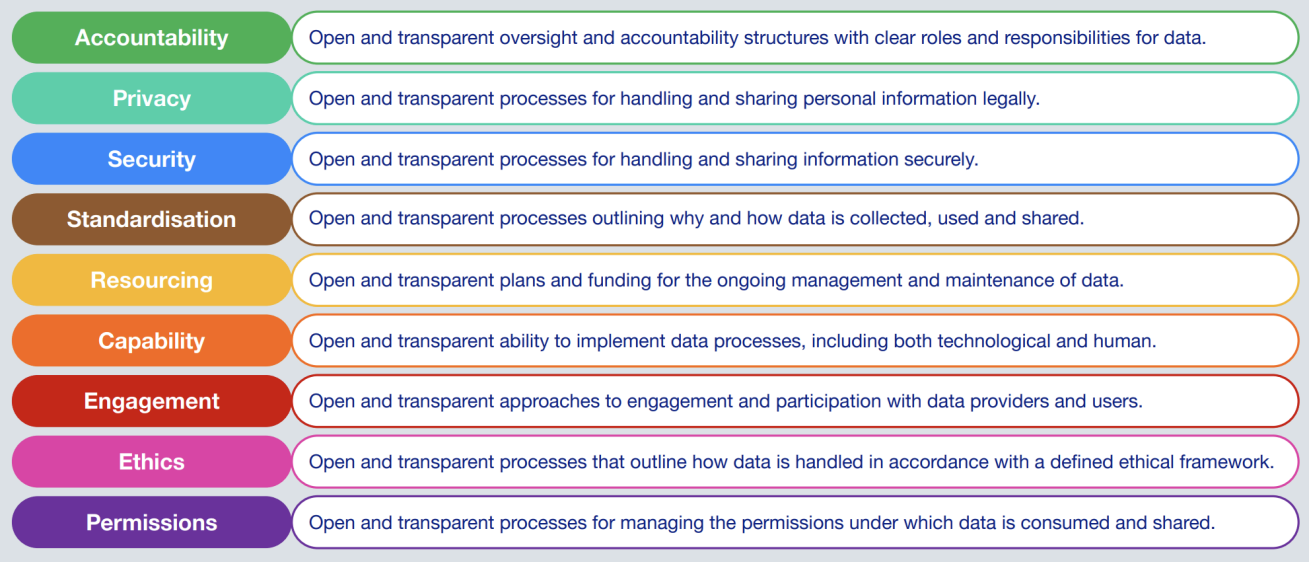
The Open Data Maturity Model has been developed with reference to existing maturity models that measure other areas of organisational maturity. Organisations that are already applying other maturity models should find that the Open Data Maturity Model aligns well with other approaches.

The Open Data Maturity Model assesses effectiveness at the organisational level. Mature organisations will be able to routinely publish datasets that are likely to gain a higher level of certification.

The Open Data Maturity model is distinct from other maturity frameworks. For example the Data Orchard maturity framework or the Data Maturity Assessment for UK Government. Whilst following the same structure of themes and levels the Open Data Maturity Model examines those themes from an open data perspective. The concept of open data or shared data, the characteristics and necessary actions are not examined in other models.

The ODI has two complementary maturity models to the Open Data Maturity Model, based on the same structure and similar themes, though each has a distinct purpose. The ODI Data Practices Maturity Model was built to focus on data sharing and standardisation of good data practice. The ODI Data Ethics Maturity Model focuses on operationalising or scaling data ethics practice within an organisation.

The Data Practices



For the ODI, our data practices serve as a foundational framework from which we derive our specific tools and processes, for example the Open Data Maturity Model and the Data Ethics Canvas focus on elements or subsets of data practices. Although each tool may focus on different aspects, this framework allows us to clearly identify how each fits within the broader system and ensures that we have carefully considered all relevant elements. The language between the two frameworks can be aligned (see later), but variations in terminology arise because the more open data model was developed first, independently of the foundational model.

What is the scope of the model?

The Open Data Maturity Model is not intended to offer a prescriptive description of exactly how organisations should publish or reuse open data. Rather, the model focuses on the general behaviours that an organisation should exhibit and the processes it should adopt.

For example, the model highlights data governance as an important organisational activity. It suggests that a robust, well-defined and widely deployed data governance process is a characteristic of a mature open data organisation. The model also notes that a well-designed data governance process will involve clear ownership over data and cover elements such as data quality management. However, it does not recommend a specific data governance process that organisations should adopt.

Individual organisations should implement these processes based on their needs. It would be overly prescriptive for this model to recommend processes that could be usefully applied in every organisation.

While we expect that best practices will eventually emerge for many of these areas of activity, that detail is outside of the scope of the maturity model.

How can the model be applied?

The structure of the model allows it to be applied in several ways:

- It can be used to produce a single maturity score providing a summary of an organisation's overall maturity.
- It can produce scores for individual themes, allowing an organisation to focus on broad areas that may need specific improvement.
- It can produce scores for individual activities, giving a more detailed assessment of an organisation.
- It can be used to assess maturity as an open data publisher or as an open data consumer.

Importantly, we intend the model to be actionable: it should be possible to use the model to both set and monitor goals for organisational development, and as a source of guidance on implementing improvements.

The five maturity levels

The Open Data Maturity Model is based on five levels that represent the different stages through which an organisation will pass as it matures. Advancing to the next stage involves creating, developing and refining specific business activities and processes.

Setting aside the details of individual activities, the levels themselves can be characterised as follows:

1. **Initial** — the desirable processes are non-existent or ad hoc, with no organisational oversight.
2. **Repeatable** — processes are becoming refined and repeatable, but only within the scope of individual teams or projects. There are no organisational standards.
3. **Defined** — processes are standardised within the organisation based on best practices identified internally or from external sources. Knowledge and best practices start to be shared internally. However, the processes may still not be widely adopted.
4. **Managed** — the organisation has widely adopted the standard processes and begins to monitor them using defined metrics.
5. **Optimising** — the organisation is attempting to optimise and refine its process to increase efficiency within the organisation and, more widely, within its business sector.

Broadly, the levels represent an increasing level of sophistication in the organisation:

- Moving from ad hoc uncontrolled processes to those that are repeatable, standardised and well-managed.
- Moving from a reactive to a proactive approach within a particular area of activity.
- Moving from isolated expertise, eg individuals championing open data, through to wider organisational support.

The five organisation themes and related activities

The model is based around five themes. Each of the themes represents a broad area of activity within the organisation:

- **Data publication processes** — identifies the key business processes that underpin data publication including assessing and mitigating risk, publication workflows, and adoption of technical standards.
- **Data literacy and skills** — highlights the steps required to create a culture of open data within an organisation by identifying the knowledge sharing, training and learning required to embed an understanding of the benefits of open data.
- **Customer support and engagement** — addresses the need for an organisation to engage with both their data sources and their data reusers to provide sufficient support and feedback to make open data successful.
- **Investment and financial performance** — covers the need for organisations to have insight into the social, economic and environmental value that datasets they hold can create and the appropriate budgetary and financial oversight required to support their publication.
- **Strategic oversight** — highlights the need for an organisation to have a clear strategy around open data and responsible data stewardship, and an identified leadership with responsibility and capacity to deliver that strategy.

Each of these themes have been broken down into several activities that describe the behaviours and processes that the organisation should carry out.

How to perform an assessment

The below guidance is for those using the free model published online. For access to the digital tool, that provides automated grading, reporting and advice on next steps, you must become a registered ODI Member, and then access the the ODI Maturity Assessment Tool. Alongside the Open Data Maturity Model, there is also the Data Ethics Maturity Model and the Data Practices Maturity Model.

Before you start

The Open Data Maturity Model provides a framework for assessing organisational maturity across a range of activities. As part of carrying out a maturity assessment, an organisation should attempt to score itself against all of these activities. This will produce a complete assessment of open data maturity and support benchmarking with other organisations. However we do not expect that all organisations will obtain the maximum score in all activities.

Some elements of the model will be more applicable to certain organisations. For example, an organisation handling sensitive personal data will likely focus more on gaining greater maturity in assessing and mitigating risk. In contrast, an organisation that manages only non-personal reference data may not require a high maturity in this area.

Some organisations may be creating and managing data as part of their primary task or goal, while others may only be generating data as a side-effect of other actions. These differences will affect how important it is to attain a high level of maturity and, accordingly, the level of investment appropriate to support improvement.

Organisations should determine the target maturity that is appropriate for their specific goals and purpose, not every organisation should necessarily seek to have a level five across every theme or activity, but should identify the level that supports their organisational goals and ambitions, and delivers value to their key stakeholders. As an organisation gains value from its open data practise this may justify additional investment, and a subsequent raising of targets to help unlock further benefits. Assessment and improvement should be an iterative process.

If an organisation is transparent about its current open data maturity and targets it may help the wider community understand what it can expect from that organisation in terms of its open data practice. Transparency can also help support benchmarking across organisations.

Importantly, the model is not meant to hinder the release or use of open data. For example, a low maturity score for a data release process should not preclude publishing open data. The activities described in the model should provide a roadmap for improvement not a list of tasks to complete before data is released. Indeed, it is desirable for organisations to experience low levels of maturity so that they develop processes that are appropriate for the organisation. Attempting to leapfrog to high maturity levels may result in imposing processes that do not take into account the culture, environment or particular needs of the organisation.

Setting an assessment process

The following process outlines a recommended approach for conducting a maturity assessment:

1. **Identify an organisational lead** — a thorough assessment will likely require input from across the organisation but there should be a clear lead who coordinates the assessment.
2. **Identify the scope** — the maturity model can be used to assess individual departments or a whole organisation. We recommend beginning with an assessment of the whole organisation.
3. **Identify key participants** — which people in the organisation may need to be involved to help answer specific questions or support the evaluation?
4. **Assess and score each activity** — using the assessment grid or digital tool, review each of the activities and identify the level of maturity achieved by the organisation. To qualify at a specific maturity level, the organisation should exhibit all of the described behaviours.
5. **Set appropriate targets** — having conducted a baseline assessment, identify appropriate targets for improvement. This will involve either maintaining or improving the score for specific activities.
6. **Develop an action plan** — based on the results and the targets, identify a plan for implementing improvements. The digital tool gives you a baseline report and can also produce a suggested action plan.
7. **Circulate results** — share the results, targets and action plan within the organisation, including to those involved in supporting the assessment. Senior management support and review will be essential in helping to implement improvements. An organisation may also wish to share its results more widely.
8. **Set date for next assessment** — the action plan should set a date for a further assessment. This will allow the organisation to monitor its progress. We recommend conducting regular annual assessments.

Prioritising and aligning your activities

The order of the themes and activities in the model reflects a rough progression from operational concerns (eg technology, standards) through to strategic issues (eg finance and policy). However there is no underlying assumption that any of the activities have a higher priority or value than others.

Also, in practice, the activities will relate to one another. For example, developing an internal asset catalogue to help create strategic oversight may also progress good data governance and data release processes. Similarly, developing a dataset valuation process may help inform financial planning and prioritising releases.

An organisation may choose to assign its own priorities to the activities in the model:

- When **conducting an assessment** it may be useful to prioritise the review of certain activities, eg to review well-defined and understood areas first or to align with other organisational priorities.
- When **setting targets and developing an action plan** the organisation may wish to prioritise certain activities for improvement. Some organisations may prefer to implement changes in a top-down style (perhaps focusing first on strategy and oversight) while others may prefer a bottom-up approach.

Theme 1. Data publication processes

The key business processes that underpin data publication, including assessing and mitigating risk, publication workflows, and adoption of technical standards.

Within a mature open data organisation, a number of business processes will underpin the effective publication of datasets. These processes will support both the release and reuse of open data.

Strong data governance helps to ensure that an organisation effectively maintains its data assets. Managing data quality is important regardless of how data is subsequently licensed and shared.

However some data management practices may be less applicable for open data. For example, managing access and security is not a concern given that open data is accessible to anyone, by definition.

Conversely, there are practices that are particularly relevant for open data. These include issues such as:

- Anonymisation and aggregation of data to **remove sensitive information.**
- **Redaction of personally or commercially sensitive data.**
- The adoption of best practices that **ensure that published data can be easily reused by third-parties.**

With this in mind, this theme highlights data management and governance practices that are particularly relevant to open data. But it is recommended that this assessment is made in the context of a wider evaluation of data governance within the organisation.

Building a process to support data release

A mature open data organisation will **have a well-defined process to support the publication of open data**. The process will address the technical aspects of publishing both new datasets and updates to existing datasets in a timely manner.

The **release process** will be well documented and address key issues such as:

- The **technical infrastructure** used to support a release, eg a specific data platform or portal.
- The **creation and maintenance of dataset-specific metadata.**
- The **internal processes and workflows** that support review and packaging of data for release.
- The **syndication of datasets** and/or metadata to third-party data catalogues and platforms.

The organisation's standard process will describe the key steps involved in a release, identifying responsibilities for ensuring releases happen in a timely manner and to a high standard. Individual datasets may be released using a methodology that adapts the organisation-wide standard based on the needs of the specific dataset or product.

Key metrics that may be collected about this process include:

- The **number of datasets released.**
- The **number of datasets released to schedule.**
- The **number of datasets being regularly updated.**
- The **mean time between internal updates being made to a dataset and those updates being shared with others.**

Moving from ad-hoc approaches to data releases to a repeatable process will bring a number of benefits, including:

- **Simplifying release of new data** through reuse of existing workflows and tools.
- Making it **easier for reusers to find and use a variety of datasets** from the organisation.
- **Clarity around whether datasets are being** released in line with corporate objectives.

The ODI has developed a variety of different learning resources to help organisations with their data publication practice, including Open Data Essentials and Publishing linked open data.

Developing standards and adoption

Mature organisations will **benefit from both the use of open standards for formatting data and the adoption of industry standard identifiers** in their datasets.

These benefits for publishers include:

- **Available open source tooling** to support managing data.
- **Easy recruitment of specific technical expertise.**
- **Reduced burden of maintaining and documenting bespoke standards.**
- **Increased adoption and use of published data.**

Adoption of standards also has **benefits for reusers** of open data:

- **Datasets published in industry or de facto standard formats are easier to consume.**
- **Datasets that use common identifiers**, such as codes for geographical areas, are **more easily compared and combined.**
- Reusers **can easily find relevant data** and documentation by looking up identifiers.
- Reusers **can more easily process datasets** when they are published using standard metadata and packaging formats.

When standards are widely adopted it benefits everyone as costs can be lowered through the use of common, standard tools. Datasets that are linked together can be more easily analysed and combined in more flexible ways.

A mature open data organisation will **define the technical standards that it will use when publishing its data**. These standards will address:

- The data formats (eg CSV, JSON, KML) used to structure the data.
- The access methods (eg an API) used to make data available.
- The means by which the data is structured, eg through use of standard schemas.

The standards may refer to a single set of technologies or recognise that certain types of data (eg geographical or statistical data) might be best published using type-specific standards.

The mature open data organisation will also **recognise that as standards evolve it**

may need to revise its data publication practices in order to best support both new and existing consumers. The organisation will therefore track industry trends and monitor how other organisations are publishing similar and interrelated datasets.

A mature organisation will also **research the ways in which reusers would like to process data.** This might lead the organisation to publishing data using several different access methods. For data analysis the ability to download data in its entirety is often essential, whereas real-time access to data may be better served by development of an API.

The ODI has developed the Open Standards for Data Handbook in order to help organisations adopting or creating data standards.

Developing data governance and management processes

Releasing high-quality open data requires organisations to apply appropriate levels of data governance to their datasets, addressing issues such as data quality, integrity, monitoring and protection across the entire data lifecycle.

A mature open data organisation will **implement a data governance process across all of its datasets**. This includes datasets produced internally and those it is consuming from third party sources.

Organisations may find that publication of open data will highlight existing data governance issues. There are many examples of inconsistencies and inaccuracies in data being uncovered only after the data is exposed to wider review. This often leads to improvements in not just the quality of the data but also review and improvements in the underlying data management practices. The resulting improvements to data quality can bring particular benefits when the organisation uses the data within its own processes and decision making.

A mature organisation will **treat a third-party open dataset as if it were its own asset**. This will involve providing appropriate feedback to the original source on data quality issues. In the case of crowd-sourced or collaboratively maintained datasets, the organisation will likely invest time in resolving these issues for the benefit of itself and other reusers.

A critical element of any data governance process within an organisation is its approach to data ethics - a branch of ethics that evaluates data practices with the potential to impact people and society. Data ethics relates to good practice around how data is collected, used and shared. It is especially relevant for open data initiatives as they are created with the goal of positively impacting people and society,

and are likely to do so both directly and indirectly.

The ODI has published the Data Ethics Canvas as a free tool to help organisations review the ethics of their approaches to data stewardship. ODI Learning also provides the free training course Data Ethics Essentials, paid-for courses such as Understanding Data Ethics and AI and certification programmes such as Data Ethics Professionals.

The ODI has developed a checklist for developing a data management plan with CABI and Bill & Melinda Gates Foundation. It is currently published on the Gates Open Research website.

Assessing and mitigating risk

Datasets may include a variety of sensitive information such as commercially sensitive data that an organisation may not be happy about sharing with competitors, or personal information about its customers, employees, or other individuals.

A mature organisation will **conduct risk and impact assessments prior to the publication of sensitive datasets**. For example it may conduct a Privacy Impact Assessment or use and Open Data Triage process that could include procedures to mitigate risk prior to release, including:

- Have an anonymisation policy and **know about the process of anonymising data.**
- **Redacting commercially sensitive figures** or company names.
- Subsetting of data to **remove sensitive fields.**
- Aggregation in order to **summarise data.**
- **Obtaining appropriate consent** from individuals whose personal data may be released.
- **Considering the data environment** such as other related datasets, people who have access to the data or people who have a motivation to exploit the data beyond its intended uses.

For more advanced modes of risk management, there are a number of different privacy-enhancing technologies (PETs) that can be used, such as federated learning or employing trusted research environments.

The ODI has published detailed guidance on assessing and mitigating risk when sharing datasets, refer to this, and other guidance such as the Stream Open Data Triage for more information on existing best practices.

A mature organisation may also seek independent, external validation of its approach to risk assessment and mitigation of sharing highly sensitive datasets.

In addition to identifying standard approaches to assessing and mitigating risk, the organisation will properly educate its staff about their use ensuring that techniques are applied correctly and effectively. The ODI provides courses on this topic, such as Anonymisation is for Everyone.

Data Practices: Standardisation

Open and transparent processes consistently applied outlining how data is collected, used, stored and shared. This includes data management processes, the application of standards, quality indicators and metadata being applied consistently across the whole data lifecycle.

Standardisation is crucial for the entire data lifecycle to ensure data accuracy, interoperability, and reliability. This approach facilitates effective data management, improves decision-making, and enhances the overall efficiency and integrity of data operations.

Standardisation helps reusers when data is shared by ensuring that the data is accurate, easily interpretable, and compatible across systems, thereby enhancing its reliability and usability for their own purposes.

The Open Data Maturity Model, in the section Data Publication Processes tests the level of standardisation when publishing open data in a number of different dimensions, for example asking about the application of metadata and domain standards. It is important to build a repeatable data publication process in order to publish open data efficiently and the Open Data Maturity Model asks to what extent the standardisation of the process has been achieved.

Theme 2. Data literacy and skills

The knowledge sharing, training and learning required to create a culture of thinking critically about data.

Data literacy is the ability to think critically about data in different contexts and examine the impact of different approaches when collecting, using and sharing data and information.

For example, data literacy should focus on:

- Comparing and contrasting how different people use numbers, graphs and infographics to convey important messages on topics such as climate change, population growth or global pandemics.
- Evaluating the impact of bias and limited sampling on important decisions, such as those in the criminal justice system or when hiring decisions are made.
- Examining the ways that data is collected and the purposes of this collection, from irregular collection in a census to sensors in trains, cars and buses that keep those vehicles running, to our interactions with digital assistants.

Improving the data literacy of our population and workforce is essential to help organisations evolve their data practices and get more value from data. Improving data literacy will help organisations build effective data focussed business models, create good data governance processes and practices, and become more trusted with data as a result.

ODI Learning provides a suite of free and paid-for training in data literacy, ranging from topics such as Open Data Essentials and Data Ethics Essentials to Strategic Data Skills and Understanding Data Ethics and AI.

Developing open data expertise

A mature organisation will **ensure that staff have the necessary training and support required to deliver on their individual responsibilities relating to open data**. This is likely to be one aspect of wider awareness of the benefits of good data governance and its application to company strategy.

It will be important that employees have training to ensure that they have:

- An **understanding of both the risks and benefits** of using and publishing open data and how that affects their own role and responsibilities.
- An **understanding of the organisation's open data policies and strategy.**
- The ability to **apply the appropriate level of data governance** in their own projects.
- **Specific training on individual topics**, eg technical standards, best practices, licensing issues.

Ideally this education programme will begin at staff induction ("data health & safety") and be offered as part of continual staff development, eg via internal training and refresher courses.

A mature organisation will also work to develop skills at all levels of the organisation, supporting both operational needs and strategic oversight.

Where staff identify additional support is required then access to the necessary expertise, whether from other parts of the organisation or externally, will also be made available. In larger organisations this may translate into dedicated staff responsible for managing open data programmes and technical platforms.

ODI Learning resources to improve open data expertise:

- Open Data Essentials.
- Publishing linked open data.
- Strategic Data Skills.

Understanding the learning needs

A mature organisation will have a repeatable process for conducting learning needs analysis that includes data as a theme, and manages this on an annual/bi-annual basis.

The organisation has KPIs for data upskilling, and measures engagement with learning opportunities across the workforce. This may still focus on baseline skills rather than advancing expertise. However, there is likely some provision for advancing key skills aligned to business needs and strategy.

A mature organisation will have data skills development as an area of development for all colleagues, identified as part of their performance or competency review. Training provision is adapted based on outcomes of the regular learning needs analysis. KPIs are defined and understood. They measure learning beyond engagement, and emphasise the application of skills within work.

A mature organisation will have a learning strategy closely aligned to organisational strategy, and the organisation is able to identify capability risks, and sustainably manage adaptability across the workforce. There are KPIs that align learning impact to business impact, such as growth, transformation, productivity and profitability.

The **ODI Skills Framework** can provide a helpful tool for creating a learning needs assessment and overall learning strategy.

Figure 1: The Data Skills Framework (Source: theodi.org)

Strategic data skills and literacy

A mature organisation will have implemented programmes of learning in relation to data. Teams and departments have loosely documented responsibilities for individuals in their areas and advise or feedback on the availability and suitability of learning provision.

Where there is limited data expertise in a team, the organisation manages support through dedicated resources in centrally managed teams.

Staff across a mature organisation are aware of the training provision available, and have identified their specific needs for development, and understand where to receive additional guidance on developing in additional areas. There are individuals who actively engage in piloting new learning opportunities to meet future business needs and anticipated changes in strategic direction.

Learning provision is nuanced, and provides introductory, intermediate and advanced literacy and skills. This goes beyond generic offerings and focuses directly on specific areas of expertise. It includes learning related to data governance, infrastructure and operations, as well as data ethics and its application to open data.

ODI Learning resources to improve strategic data skills and literacy

- Strategic Data Skills.
- Introduction to Data Ethics and Responsible AI.
- Building Healthy Data Ecosystems.

Data Practices: Capability

Open and transparent ability to carry out all aspects of data processes at all levels in the organisation, including people and technology. This includes ensuring data requirements for specific roles are included in job descriptions, that there is a clear understanding of the different levels of data skills and literacy required and that there is training available to address any gaps. It also includes capability from technology applied to facilitating data practice, for example an existing data publication portal.

Understanding capability is important to data practice because it identifies strengths and gaps enabling the development of targeted activities to enhance data outcomes, while ensuring that planned changes account for current skills, literacy, and technology levels.

Demonstrating an organisation's data capability is important when sharing data, as it ensures that all parties can effectively manage and use the data, while also accounting for differences in skills, literacy, and technology levels to enable smooth and reliable data exchanges.

The Open Data Maturity Model looks at capability in the form of Skills and Literacy and asks similar questions about the current level of capability relative to the required level and how gaps are addressed. The Open Data Maturity Model is on the Skills and Literacy needs focused on open data publication.

Theme 3. Customer support and engagement

The requirements for an organisation to engage with both their data sources and their data reusers to provide sufficient support and feedback to make open data successful.

Publishing high quality open data involves more than making data available online: reusers will need support in correctly interpreting and using that data. At a minimum this will require that data is published with enough documentation and supporting metadata that reusers can understand the structure, scope and provenance of a dataset.

A mature organisation will also **consider additional ways that it can support its reusers such as via a help desk function or similar services**. Growing a community around a dataset might involve helping interested reusers connect with each other to share experiences and benefits.

Open data is published for a variety of reasons. Regardless of whether data is published to meet legal obligations or as part of an open data business model, an organisation will need to plan how it will engage with its customers, monitor how its data is being used and identify where value is being created.

Developing an engagement and community building process

A mature open data organisation will **define a process for engaging with reusers of its data**. For organisations that are already familiar with publishing data or supporting external customers this type of engagement will be an evolution of existing practices. In other organisations this might be a new process and may require the organisation to identify new roles and communication channels.

Organisations with existing customer engagement and marketing programmes will need to consider how publishing open data may result in new audiences for their data. Cost reduction and network effects may surface additional demand for and opportunities for using data.

An engagement process will typically include a range of activities[12]:

- Identifying both **potential and actual reusers of a dataset.**
- Identifying the **key stakeholders in the reuser community** in order to prioritise and focus engagement activities.
- Engaging with that community to **help them understand how a dataset might be used** and to highlight relevant new data releases.
- A communications plan to **help promote the activities of both the publisher** (news, events, etc) **and the community itself** (eg share success stories, insights into the data, and case studies).
- Reflecting experiences back into the organisation to help demonstrate value, build business cases, etc.
- Running events such as hack days or challenges to **encourage and incentivise use of data** and to generate case studies for wider sharing.

Ideally the process will be metrics-driven, allowing an organisation to monitor and improve its outreach activities. Metrics gathered by the organisation might include basic indicators such as:

- The number of **users accessing or using data.**
- The number of **users contributing to discussions or data updates.**
- The number of **applications developed on published data.**

Not all datasets will necessarily need or require a detailed engagement activity. One step in defining the engagement plan for a dataset will be identifying the appropriate level of engagement necessary and appropriate to the ongoing investment in the data.

A mature open data organisation will **support not only its reusers but will also act as a good citizen in the wider open data community**. For example an organisation will be transparent about the open data it uses, ensuring that appropriate attribution is given to those sources.

The organisation will also:

- Seek to **share its experiences with individual datasets**, providing feedback to their publishers on ease of use, data issues, etc.
- **Be transparent about the open datasets** it uses to help highlight the value of those datasets in the community; this will include ensuring that sources are attributed.
- **Create and share case studies** that highlight the impact and benefits of working with open data.

Documenting your open data

Data cannot be used effectively if it is not properly documented. A mature open data organisation will **ensure that all datasets are published with a standard set of supporting documentation that follows a consistent template structure**. This documentation will be created and maintained throughout the lifecycle of the dataset, rather than just prior to publication.

The level of documentation required will usually vary depending on the complexity of the individual dataset and its method of collection and analysis. Typically documentation will include:

- **Descriptive data** — providing a high-level summary and supporting metadata to describe the dataset including title, description, keywords, licence, rights statements and attribution requirements.
- **Access information** — describes how to access the data, location of archives and mirrors, etc.
- **Indicators** — summary statistics that provide insight into the size, rate of growth, quality and update frequency of the dataset, and data quality.
- **Relationships** — pointers to other data sources that were used to construct the dataset, eg references to standard code-lists and other complementary datasets.
- **Scope & coverage** — a description of the contents of the dataset, the types of entity it describes, its geographic focus, and the time period to which it applies.
- **Provenance** — how data has been collected and processed prior to publication.
- **Technical documentation** — a description of the data formats with reference to formal schemas that define the fields in the datasets; sample records may be used for illustrative purposes.

Data delivered via an API rather than a dataset download will also be accompanied by a specification of the API implementation.

Creating and maintaining this documentation will form an important element in both the process of releasing a dataset and supporting its subsequent use. Ideally documentation will be managed using a content management system that enables its rapid production, review and publication.

In a mature open data organisation, reference **documentation will often be supplemented with additional material**, such as tutorials on using or accessing a dataset, sample applications, or pointers to useful tools and resources that support effective reuse. The effort put into providing both the core and any additional documentation will be appropriate to the value and investment in the dataset.

Building a reuser support process

A mature open data organisation will have **well-defined contact points that will allow third-parties to engage with the organisation about its open data practice**. For example, they will allow reusers to request that the organisation open up data, or provide input into the prioritisation of planned releases.

For data that is already released, a mature organisation will also provide support for reusers in other ways:

- An **open forum for raising questions about a dataset**, eg with a support team or others in the reuser community.
- A **means to report errors, data quality, or privacy issues with a dataset.**
- **Communication on issues that may impact reusers**, eg significant changes to a dataset; reported data quality issues; retiring of a dataset; or a decision to not release an identified dataset.

The organisation will ensure that the support available for a dataset is clearly defined so that reusers can have appropriate expectations about the level of support available.

A mature organisation acts to measure the cost and efficiency of its support operations, and actively creates additional learning materials and community support groups as necessary.

The organisation ensures that it is delivering on its support arrangement for all datasets. For example, response times are within goals. The backlog of issues is relatively small, with no issue waiting for an extensive period of time. Difficult issues are used to improve the overall process rather than simply being handled on a case by case basis.

The ODI has developed a User-Centric Data Publishing Toolkit in order to help organisations ensure their data publication activities are being led by user needs.

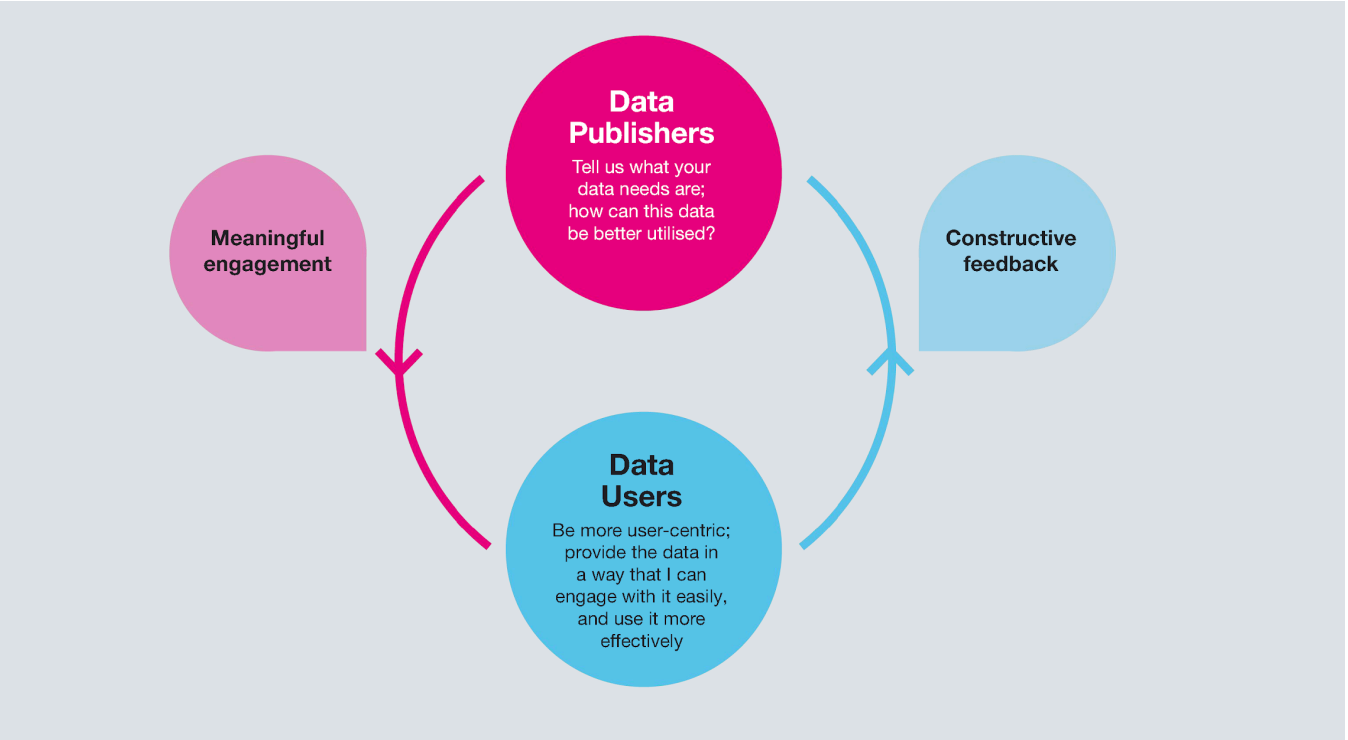


Figure 2: The Communication Loop (Source: theodi.org)

Data Practices: Engagement

Open and transparent approaches to engagement and participation with data providers and users. This means that both internal and external stakeholders can contribute effectively to improving data practices and can make better use of data. There needs to be distinct routes for engaging different types of stakeholders. The communication channels should include two-way processes. In addition effective engagement means that the narrative around data is clear and supported with adequate meta-data for reusers.

It is important that data practices support the organisation's engagement with staff, suppliers, customers and impacted communities, demonstrating a commitment to meeting business and data goals through transparency. When sharing data, it is important to take into account and respond to stakeholder needs, to provide data in the most useful format, to provide adequate descriptive information to seek an understanding of how the data is reused to generate better outcomes.

The Open Data Maturity Model examines external engagement from help desk support for customers to external third party organisations. For open data the specific need to proactively engage with third parties is examined in detail whilst elements of internal engagement are covered in Data Publication Processes.

Theme 4. Investment and financial performance

The requirements for organisations have insight into the social, economic and environmental value that datasets they hold can create and the appropriate budgetary and financial oversight required to support their publication.

Publishing open data, especially over the long-term and to a high standard, requires **ongoing investment in both people and infrastructure**. These costs may be offset by financial benefits from opening data, such as through exploiting new business models, or efficiency savings from deduplication of data curation efforts or easier integration with third-parties.

Similar benefits accrue from the use of third-party open datasets. An open dataset might replace a costly licensed alternative. Costs to maintain an internal dataset might be reduced by switching to an open collaborative model for managing the data.

A mature open data organisation will **quantify both the costs and benefits that relate to its open data practice**. By valuing both published and unpublished datasets, the organisation will be able to prioritise and justify its ongoing investment.

Ensuring financial oversight

A mature organisation will **actively monitor the financial costs and benefits of both publishing and using open and closed (restrictively licensed) data.** This will include ensuring that project funding and operational costs for new and existing projects include the appropriate levels of investment to support data publication where applicable.

The organisation will recognise the difference between the ongoing costs associated with general data governance and those associated specifically with open data publication. This will avoid incorrectly attributing to open data publishing efforts the entire cost of improvements to data governance and similar best practices.

The organisation will also use this financial insight to look for efficiency savings in its publication and use of data such as through reduction in data management overheads or cost savings from adoption of open data.

Building open data into procurement practices

For an organisation to understand its rights to publish and reuse data it is essential that there is clarity about how data is created and managed throughout the organisation. In some cases data assets may be created or managed by third-parties such as by contractors, partner organisations, or in Software-as-a-Service infrastructure.

The practice of open procurement is still evolving, but a mature open data organisation will ensure that:

- **Contracts used for sub-contractors clearly describe the intellectual property rights** associated with any data delivered or created during a project or service, where possible granting those rights to the organisation.
- Procurement processes have been updated to **ensure that, where appropriate, potential contractors provide information about how they will deliver open data** as part of a project.
- Contractors **provide clarity around the provenance of any data they use** or supply so that the organisation is clear on any rights relating to derived datasets.
- Procurement practices **take into account the whole-life costs** of a service to favour suppliers that provide easy access to data required to move suppliers.

This will ensure that the organisation is proactively clarifying intellectual property rights, where necessary, rather than reactively undertaking costly rights clearance after contracts are awarded.

Understanding the value of open data

A mature organisation will **recognise that investment in open data publication should be driven by a cost/benefit analysis**. High value datasets, namely those directly aligned with delivery of corporate objectives, may require higher levels of investment than other secondary datasets.

The organisation will have a methodology for assessing the value of a dataset to both the business and end-users. The methodology may involve engaging with end-users in order to identify the level of interest or demand in datasets, and how that data might be used.

The lack of a data valuation process should not hinder the release of open data. But by defining a process an organisation will be better able to prioritise datasets for

release and to ensure appropriate levels of investment are made in their governance and ongoing publication.

A mature organisation will also **be transparent about its approach to valuing datasets, sharing the metrics it uses with those who have interest in its data.**

Similarly, where an organisation is reusing datasets it should be able to quantify the financial benefits associated with their reuse, for example by comparison with the costs associated with licensed alternatives. The organisation will work to maximise the value it derives from data assets and look for opportunities where switching from a licensed dataset to an open dataset might provide additional benefits, such as affording greater transparency or the ability to switch to less costly service providers.

The ODI has published the Data Ecosystem Mapping methodology as a free resource to help organisations plot out their journey from publishing open data to the value and impact that it can create. There are also a series of seven case studies demonstrating how businesses can create value for themselves and their ecosystems. For further information, there is ODI research on understanding the social and economic value of data sharing.

Data Practices: Resourcing

Open and transparent plans and funding for the ongoing management and maintenance of data, including people and technology. This includes budgets for operational teams and project teams and budgets for the technology required to support data practices.

Adequate and planned financial, people, and technology resources are crucial for excellent data practice because they provide the necessary infrastructure, skilled personnel, and tools to manage, analyse, and protect data effectively, while recognizing that good data practice takes time and requires a multi-year approach for continuous improvement and adaptation.

This is important for data reusers because it provides assurance that the data they access is managed with consistent quality and long-term reliability, allowing them to plan effectively and use the data more accurately for better outcomes.

The Open Data Maturity Model asks questions about budget provision beyond any individual data release project, in recognition of the efficiency gains from adapting open data publishing as BAU. There is a deeper examination of contractual provisions for data sharing that is covered in the Permissions section of Data Practices.

Theme 5. Strategic oversight

The requirements for a clear strategy around open data and responsible data stewardship, and an identified leadership with responsibility and capacity to deliver that strategy.

Given the impacts of open data practise on internal processes and the potential financial benefits and investment required, a mature open data organisation will ensure that its adoption of open data is closely aligned with its wider organisational objectives.

Both internal and third-party open datasets will be recognised as assets that should be carefully managed. Close alignment with company strategy will ensure that objectives for delivering on the value associated with open data will be reflected at a senior management level.

Shaping open data strategy

A mature open data organisation will **have an open data strategy that clearly describes its ongoing commitments and policies relating to its open data practice**.

As an internal resource, an open data strategy will set out the organisation's strategy for building open data into its products and reporting. It will also identify the roles and responsibilities of those involved in publishing open data on behalf of the organisation. The strategy will reference the key processes highlighted elsewhere in this model, that is for procurement, data governance, release processes, etc.

A mature organisation might **publicly publish its open data strategy, making a stronger commitment to open data**. A public strategy will give reusers insight into how the organisation prioritises its datasets for release and describe how to engage with that process. A good open data strategy will also identify how the organisation's policy may evolve over time.

The mature organisation will also **attempt to measure its progress against its strategy**. For example it may include commitments that set out targets for gaining and improving the levels of dataset certification according to the ODI's certification progress.

The open data strategy will have a clear owner who will have both the budget and responsibility for its delivery. The individual processes referenced in the strategy, such as data governance, will also be owned by specific roles in the organisation and their responsibilities will be clearly defined.

Asset catalogue management

A mature open data organisation will **treat data as an asset**. A data catalogue is a list of datasets annotated with important information that can help users understand why data has been collected, what it contains, how it is managed and the ways it will be made available for others to use. It is a useful tool for any organisation or project dealing with multiple types and sources of data.

When published under an open licence, a data catalogue can also help people outside of an organisation to find and use the data they need. Using an open standard for metadata facilitates the discoverability and aggregation of datasets from multiple sources.

A mature organisation will maintain a catalogue that lists both its own internal datasets and those it uses from third-parties. The catalogue will include all significant internal data, not just that published as open data.

The catalogue will support the reporting necessary to deliver the appropriate oversight over data governance and release processes and, at a higher-level, progress against the organisational strategy. The catalogue may also support discovery of cost savings by identifying duplicate or overlapping data sets and opportunities to reuse existing datasets in new products and services.

For datasets that the organisation owns, the catalogue may include information such as:

- The **risks** associated with releasing a dataset, eg whether it contains personal or sensitive information.
- The **value** of the dataset, as determined through the organisation's data valuation process.
- The **details** of ongoing financial investment associated with its release (or reuse) as open data.
- Whether the dataset is **planned for release.**
- A **summary of the key metrics** collected by the engagement process, etc.
  For datasets that the organisation reuses, the catalogue may include information such as:

- The rights that the organisation has to use the data.
- For commercial data, the costs associated with reuse.
- For commercial data, the risks associated with a price increase.
- The risks associated with a dataset becoming unavailable or unmaintained.
- The ways that the data is reused by the organisation.

The ODI has developed guidance on how to create a data inventory with CABI and Bill & Melinda Gates Foundation. It is currently published on the Gates Open Research website.

Responsible data stewardship approach

The ODI defines responsible data stewardship as an iterative, systemic process of ensuring that data is collected, used and shared for public benefit, mitigating the ways that data can produce harm, and addressing how it can redress structural inequalities.

Iterative: Responsible data stewardship is a negotiated and reflective process. Because contexts vary and change over time, mitigations and approaches to collecting, maintaining and sharing data need to constantly evolve.

Systemic: The impacts of data collection and use are rarely fully within the control of any one organisation, so organisations need to develop a systemic view of their data practices that links how choices made around data have impacts outside of the organisation.

Public benefit: Stewarding data responsibly involves ensuring it's used and shared for the benefit of others, rather than only for the benefit of the organisation that holds it.

Harm: Alongside seeking positive impact from the use of data, responsible data stewardship involves identifying and reducing harmful impacts to individuals and communities, often going above and beyond legal requirements around privacy, security and transparency.

Redress structural inequalities: Data stewardship always occurs within a wider system of relationships, value exchanges and power imbalances, which have real-world consequences for data. Responsible data stewardship may involve meaningful new communication with data subjects and other stakeholders, or adopting alternative forms of governance.

A mature organisation demonstrates clear leadership in responsible data stewardship, with a proven, public track record, including case studies with verified impact reports

that demonstrate responsible data stewardship.

The organisation continues to drive and improve definitions of responsible data stewardship, and supports other organisations in their journey.

For further information, there is ODI research on defining responsible data stewardship, including a set of impact stories to demonstrate responsible data stewardship in practice.

Data Practices: Accountability

Open and transparent oversight and accountability structures with clear roles and responsibilities for data. Structures include organisational groups, for example data governance boards or data stewards, a policy framework, an up-to-date strategy and an escalation process.

Accountability is crucial in data practice because it ensures that individuals and teams are clearly responsible for data management activities, promoting transparency, higher quality and trust in how data is collected, used and shared.

Clear accountability helps in sharing data for reuse by ensuring that data is managed responsibly, with consistent quality and clear ownership and decision making, which builds trust and makes others more confident in reusing the data.

In Strategic Oversight the Open Data Maturity Model examines the level of leadership for publishing data through an open data strategy, looks at classification of data in an asset catalogue (defining accountability for the datasets) and asks questions about the data stewardship role.

Appendix: Open Data Maturity Model assessment grid

Data publication process / Data release process

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How are datasets published and made accessible to the public?	There is little or no open data available for public access.	Data is published on an ad-hoc basis across multiple platforms or websites.	A set of defined datasets is published on a regular schedule.	Datasets are hosted on a managed platform with robust data management capabilities.	Datasets are automatically indexed in external data aggregation portals, ensuring seamless updates.
Is there a clear and repeatable process for releasing data?	Data is published using ad-hoc, often manual processes.	Certain teams or projects follow a defined, repeatable process for publishing data.	There is a consistent, organisation-wide data release process, with a regular release cadence.	All published datasets follow a standard organisational process for release.	The organisation tracks and measures metrics related to the release process, such as the time between updates.
How is the licensing of datasets managed?	Licensing is not addressed, leaving data open to viewing but not necessarily for reuse.	Datasets are published under an open data licence, enabling both access and reuse.	Licences include clear attribution statements, making it easy for others to reuse the data.	Licences are accompanied by detailed documentation explaining what aspects of the dataset are covered, such as structure, format, or third-party content.	New technologies, such as AI, are assessed for their impact on licensing, ensuring compatibility and evaluating emerging risks.
How are dataset updates managed?	Datasets are rarely, if ever, updated once published.	Some datasets are updated according to a predefined schedule.	Datasets are updated regularly, with updates following a published timetable.	Archived versions of key datasets are maintained to support historical analysis and comparisons.	Reports provide insights into dataset sustainability, highlighting stale datasets and emerging risks.

Data publication process / Standards development and adoption

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
Are datasets published using common standards?	Datasets are not released using common standards.	Some teams or projects have agreed on specific technical standards for formatting certain types of data.	The organisation has defined a set of key technical data publishing standards, which include data formats and metadata schemas.	All datasets are released in full conformance with the organisation's technical standards.	The organisation monitors technology trends to ensure datasets are released according to evolving standards and best practices.
How are data formats and accessibility managed?	Data is available in various formats with no standardisation or quality control.	Data is made available in structured formats that are easy for humans to reuse (eg XLS, CSV).	Most datasets are machine-readable and use standardised column headings and lookup tables for clarity.	Datasets are released in open, non-proprietary formats (eg CSV, JSON) and include well-structured metadata.	Datasets are formatted to be AI/ML-ready, following advanced standards for machine readability.
Is metadata consistently applied to datasets?	Metadata is not gathered or published alongside datasets.	Some metadata is gathered and published, but the quality and completeness are inconsistent.	Metadata is well-structured and adheres to the same quality standards as the data itself.	Metadata follows open standards such as DCAT, ensuring consistency with other datasets.	The organisation uses open standards for both data and metadata, ensuring alignment with other sources.
How is the process of standards management handled within the organisation?	There is no defined process for managing data standards.	Standards are driven by internal priorities with limited consideration for external data reusers.	A formal process for data standards management has been defined and is consistently followed across the organisation.	The organisation has a strategic approach for managing data standards and is beginning to adopt open standards.	The organisation optimises its data standards management process by monitoring new technologies and ensuring compatibility with emerging use cases such as AI/ML.

Data publication process / Data management and governance

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How consistently are datasets managed?	Datasets are not managed in any consistent way.	Specific teams or projects have begun defining their own lightweight data management processes that are used in an ad hoc manner.	The organisation has defined standard data management processes, applied to high-value datasets.	Standard data management processes are applied to all datasets, with the flexibility to tailor processes for specific projects.	The organisation continually monitors and improves its data management processes, ensuring they are optimised for changing needs.
Is ownership of datasets clearly defined?	There is no clear ownership around internal datasets.	Specific individuals or teams are informally responsible for certain datasets, but this is not clearly documented.	Each dataset has a well-defined owner, responsible for managing the data throughout its lifecycle.	Ownership is clearly documented for all datasets and regularly reviewed to ensure accountability throughout the data lifecycle.	Ownership structures are fully integrated into the organisation's data governance framework, ensuring that changes in ownership or responsibility are automatically tracked and updated.
How is data quality monitored and maintained?	Data quality is not actively monitored, and no formal process exists for ensuring data accuracy or completeness.	Some datasets are reviewed for quality, but processes are inconsistent and reactive.	High-value datasets are regularly monitored for quality, and issues are addressed as they arise.	Data quality for all datasets is actively monitored with clear guidelines for addressing quality issues, based on feedback from both internal and external users.	Data quality is proactively improved, with regular assessments and collaboration with external reusers to ensure datasets meet evolving needs and standards.
How is open data governance integrated into the organisation's processes?	There is no formal governance process for managing open data.	Specific teams have informal governance processes for releasing open data, but these are inconsistent across the organisation.	The organisation has established a governance framework for managing open data releases, applied to key datasets.	The open data governance framework is applied to all datasets, ensuring consistent practices and monitoring.	The organisation continuously improves its open data governance, incorporating feedback from reusers and monitoring the impact of its data releases.

Data publication process / Compliance and risk

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How does the organisation manage risks associated with data publication?	The organisation recognises that there may be risks associated with data, but has not yet defined any processes for assessing and mitigating them.	The organisation has begun assessing risks associated with some datasets, but the process is informal and not yet documented across the board.	Processes for assessing and mitigating risks are defined and documented. These processes are applied routinely to high-value datasets.	Risk management is fully integrated into the data governance process. All datasets undergo a risk assessment before publication, and mitigation strategies such as anonymisation and aggregation are employed where needed.	The organisation has a comprehensive risk management framework in place, including advanced Privacy Enhancing Technologies (PETs) and external validation for high-risk datasets. The process is transparent and linked to published risk registers.
How are datasets containing personal or sensitive information handled?	There is no formal process in place for handling datasets containing personal or sensitive information, and no risk assessment is conducted before data release.	The organisation regularly evaluates the risks and benefits of releasing datasets containing personal or sensitive information, with informal methods for anonymisation or aggregation.	Standard processes for anonymising or aggregating personal or sensitive information are defined and applied to most datasets. Consent or lawful basis for releasing personal data is obtained where necessary.	All datasets containing personal or sensitive information are subject to strict anonymisation or aggregation processes, with advanced techniques used for de-identification. Personal data is released only when fully compliant with legal frameworks.	The organisation employs cutting-edge techniques for safeguarding personal data, including the use of Privacy Enhancing Technologies (PETs) and routinely monitors new privacy risks. A published open data triage process is in place and includes full transparency on how personal data is handled.

How does the organisation address ethical considerations in its data practices?	Ethics is not formally considered in the organisation's data practices or publication processes.	Specific teams or individuals within the organisation are aware of ethical concerns but there is no standardised process for addressing them.	The organisation has developed a standard process for addressing ethical considerations in its data practices, which includes evaluating the potential consequences of data publication.	Ethics is embedded into the data governance process, with routine evaluations of the ethical implications of data releases. Feedback loops are established to address any ethical concerns raised by stakeholders or reusers.	The organisation takes a proactive approach to ethics, regularly reviewing and updating its ethical guidelines. Ethics is treated on par with legal compliance, and the organisation considers the long-term societal impact of its data releases, including the ethical implications of AI/ML use cases.
How does the organisation ensure compliance with international data standards and legal frameworks?	The organisation has little awareness or knowledge of relevant international standards or legal frameworks relating to data publication.	The organisation has begun assessing its compliance with some international standards and legal frameworks, but the process is informal.	The organisation has developed processes to ensure compliance with key international standards and legal frameworks. These processes are applied to high-value datasets.	The organisation routinely monitors compliance with international standards and legal frameworks, and has processes in place to ensure compliance across all datasets.	The organisation actively monitors the changing regulatory landscape and ensures that all datasets comply with the most up-to-date standards and legal requirements. Compliance is externally validated where necessary.
How transparent is the organisation's risk management process?	There is no transparency around the organisation's risk management process, and the public has no insight into the risks associated with published datasets.	Some information about the risks associated with data publication is available internally, but this information is not made public.	The organisation publishes a risk register for key datasets, outlining potential risks and mitigation strategies. However, this register is incomplete.	A comprehensive risk register is published and regularly updated, with detailed mitigation strategies for each dataset. The organisation is transparent about how risks are assessed and managed.	The organisation's risk management process is fully transparent, with regular updates to the risk register and the inclusion of feedback from external stakeholders. The risk register is linked to the organisation's open data triage process and is accessible to the public.

Data literacy and skills / Open data expertise

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How does the organisation assess and support open data expertise?	Current open data activities rely on the knowledge of a small number of stakeholders, with no formal strategy for expanding this expertise.	Data professionals are embedded in teams, but there is no centralised strategy to develop open data expertise across the organisation.	Open data expertise is centralised in a few key individuals or teams, and the organisation partners with external specialists when required.	There is a centralised open data team or network of experts, with clear roles and responsibilities defined across teams to support open data initiatives.	The organisation fosters open data expertise across all levels, including external networks and partnerships that advance open data practices globally.
How does the organisation encourage the growth of open data skills?	There are no formal training or mentoring programmes related to open data.	Training around open data is provided on an ad-hoc basis, driven by the needs of specific projects.	Internal open data experts mentor and support others, and there are growing training opportunities for staff.	Open data awareness and training are a standard part of staff development, and mentorship programmes are well established.	Open data training is embedded across all roles and is tailored to individual needs, with an active internal and external mentoring network.

Data literacy and skills / Understanding learning needs

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How does the organisation identify its data literacy and skills needs?	There is no formal process for identifying data literacy and skills needs within the organisation.	Some teams and individuals have identified their learning needs, but there is no organisation-wide analysis or process.	The organisation has undertaken a learning needs analysis and has identified key areas where data literacy and skills need improvement.	The organisation conducts a structured learning needs analysis on a regular basis, identifying gaps in data literacy and aligning them with strategic objectives.	The organisation continuously evaluates data literacy needs, aligning them with future business needs, and tracks how learning impacts organisational performance.
How are opportunities for learning and development provided?	There are limited or no opportunities for learning about data skills and literacy within the organisation.	Learning resources are available, but they are often ad-hoc and focus on specific projects rather than broader organisational needs.	The organisation provides some structured learning opportunities, focusing on developing core data skills across teams.	The organisation has well-defined learning programmes, and staff are actively encouraged to take part in data literacy training aligned with strategic goals.	Learning and development programmes are fully embedded, with tailored opportunities available for all staff to continuously improve their data literacy and skills.

Data literacy and skills / Strategic data skills and literacy

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How are data literacy and skills driven strategically across the organisation?	There is no strategic ownership of data literacy and skills development within the organisation.	The organisation has appointed a strategic owner for data literacy, but efforts are limited to tool-specific training (eg Excel).	The organisation provides internal training for data literacy, though it is still generic and not linked to specific job roles or strategic goals.	Data literacy and skills are embedded into performance reviews, and the organisation actively drives data literacy as a key strategic focus.	The organisation continuously aligns its data literacy and skills development with broader strategic objectives, tracking KPIs and regularly adjusting its approach to meet future business needs.
How does the organisation support teams with limited data expertise?	Teams with limited data expertise have no formal support for building skills or accessing data literacy resources.	Some teams with limited data expertise are supported by ad-hoc resources, such as project-based training or external consultants.	Teams with limited data expertise are supported by centrally managed resources, such as data champions or dedicated data professionals.	There is a clear support structure in place for teams with limited data expertise, including access to mentors, training programmes, and centrally managed data teams.	The organisation provides tailored, continuous support to teams with limited data expertise, ensuring they are fully integrated into data-driven projects and have access to the necessary skills and resources.

Customer support and engagement / Engagement and community building

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How does the organisation engage with stakeholders and build a community around open data?	There is no systematic attempt to identify potential reusers, and communication with stakeholders is informal or absent.	Some teams engage with stakeholders on an ad-hoc basis, but information about reusers and stakeholders is siloed.	Stakeholders are regularly identified and mapped, and there is a process for engaging them across different data releases.	The organisation proactively seeks to engage stakeholders before and after data releases, using feedback to improve future publications.	There is a comprehensive stakeholder engagement strategy linked to organisational goals, and the organisation actively builds and nurtures an external community of reusers.
How does the organisation prioritise and communicate its data releases?	Data releases are driven by short-term internal priorities with little communication to external stakeholders.	Some data releases are based on external demands, but there is no clear, coordinated process for prioritising publications.	Data releases are driven by reuser demand, with a process in place for stakeholders to request datasets.	The organisation's data release strategy is communicated clearly to stakeholders, with a repeatable process to guide engagement and publication.	Data release priorities are informed by continuous dialogue with the community, and the organisation monitors and adjusts its strategy based on feedback and impact assessments.
How does the organisation collaborate with others to improve open data practices?	The organisation has little or no collaboration with other organisations regarding open data.	There is some ad-hoc collaboration with peer organisations within the same sector to share knowledge about open data.	The organisation is engaged in sector-wide efforts to improve open data practices and supports external initiatives reactively.	The organisation plays an active role in sector-level collaborations to advance open data practices, contributing proactively to cross-organisational efforts.	The organisation leads sector-level initiatives to advance open data, establishing best practices and fostering innovation through challenges, partnerships, and dedicated engagement groups.

Customer support and engagement / Reuser support processes

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How does the organisation support reusers of its data?	There is no formal support for reusers, and individuals must find their own ways to access help.	Some reusers can access ad-hoc support, but there are no centralised processes for providing help.	A central support team exists, and reusers are provided with clear contact points to seek help regarding datasets.	The organisation actively promotes its support offerings, providing clear expectations (eg response times) and fostering open communication through multiple channels (eg forums, social media).	The organisation measures the effectiveness of its support operations, ensuring reusers receive prompt responses and issues are addressed swiftly, using feedback to improve support processes.
How does the organisation obtain feedback from reusers?	There is no systematic way to collect feedback from reusers, and issues are not actively monitored or addressed.	Individual teams collect feedback on an ad-hoc basis, but this is not shared or coordinated across the organisation.	Feedback is collected through formal channels, such as user forums, and there is a process for addressing issues that arise.	Reusers' feedback is routinely captured, analysed, and used to drive improvements in datasets and support processes.	Feedback collection is embedded into the organisation's processes, and the organisation routinely collaborates with reusers to enhance the quality and usefulness of its datasets and support services.
How are reuser metrics monitored and used to improve data and support?	There is no monitoring of how reusers interact with datasets or the support process.	Some metrics are collected, but these are sporadic and focus on a limited number of datasets.	Metrics on reuser interactions are collected routinely, and they are analysed to inform improvements in data publication and user support.	Metrics are captured in an automated and structured way, providing insights into the impact of datasets and the efficiency of support operations.	Reuser metrics are continuously monitored, with insights driving strategic improvements in both data quality and user support services. Feedback loops ensure ongoing optimisation of the process.

Customer support and engagement / Open data documentation

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
What level of documentation is provided with published datasets?	Datasets are released with little or no supporting documentation.	The level of documentation provided is inconsistent and depends on individual efforts.	A standard set of documentation and metadata is defined, but it is only applied to some datasets, typically high-value ones.	All datasets are released with a standard set of supporting documentation and metadata using established templates.	The organisation routinely provides comprehensive documentation and high-quality metadata for all datasets.
How does the organisation ensure the quality and consistency of documentation?	There are no established processes to ensure the quality or consistency of documentation across datasets.	Some teams have started using templates or guidelines to create documentation, but these are applied inconsistently.	The organisation has developed a standard approach for documentation, but not all datasets conform to these standards.	All datasets conform to an established documentation process, and this process is integrated into the data publishing workflow.	Supporting documentation and metadata creation are fully integrated into the publishing process and regularly reviewed for consistency.
How does the organisation gather feedback on documentation from reusers?	There is no formal process for gathering feedback on documentation from reusers.	Some reusers provide feedback informally, but there is no systematic approach to gathering or addressing their input.	A formal process is in place for reusers to provide feedback on documentation, and this is occasionally used to make improvements.	The organisation actively seeks feedback from reusers on documentation, and improvements are regularly made based on their input.	Reusers are encouraged to contribute to the improvement of documentation, and the organisation promotes the use of third-party resources and tools to supplement its documentation.

Investment and financial performance / Financial oversight and procurement

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How is funding managed for open data publication and its lifecycle?	Data releases are unfunded and handled as exceptional, unplanned expenditure.	Individual projects include open data publication costs as part of their specific project budget, without considering longer-term costs.	Project funding includes long-term costs for open data publication, and responsibility for these costs is explicitly assigned to roles within the organisation.	The organisation actively monitors the financial costs and benefits of open data publication as part of ongoing data governance processes.	The organisation seeks efficiency savings and sustainability strategies in open data publication, optimising data management and reducing licensing overheads where possible.
How does the organisation ensure long-term sustainability in open data publication and management?	There is no long-term sustainability plan for the ongoing management of published open data.	Open data is managed through short-term project funding without considering its long-term lifecycle.	The organisation has a sustainability plan that includes budgeting for ongoing updates and management of key datasets.	Sustainability planning is integrated into the organisation's data governance, ensuring consistent funding and updates for high-value datasets.	The organisation actively seeks external partnerships or additional funding streams to ensure the long-term sustainability of open data.
How does the organisation address open data in procurement processes and contracts?	Procurement processes and contracts do not address data supply, licensing, or reuse.	The organisation seeks clarity around data rights retrospectively when it comes to procurement, in order to drive more open data adoption.	Some procurement activities and contracts are tailored to address open data licensing and reuse, depending on project needs.	The organisation includes standard clauses in contracts and procurement activities to ensure clarity around data rights and reuse.	All procurement processes and contracts include explicit reference to open data rights and reuse where applicable, and these are standard across all projects.
How does the organisation manage its rights to release and reuse data from contracts or partnerships?	The organisation is unaware of its rights to release or reuse data resulting from contracts or partnerships.	The organisation is beginning to clarify its rights to release data retrospectively, but this is done on a project-by-project basis.	Clear processes are in place to ensure the organisation understands its rights to release and reuse data from contracts and partnerships.	The organisation has an established process for ensuring that rights to release and reuse data are clear in all contracts and partnerships.	Rights management for open data is fully integrated into all procurement and partnership processes, ensuring clarity from the outset for all contracts.

Investment and financial performance / Understanding the value of open data

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How does the organisation quantify the value of its open data?	No attempt is made to quantify the value of published or reused datasets.	The organisation carries out some qualitative reporting on the value of datasets, but it is largely described in general terms without standardisation.	Valuation of datasets is done retrospectively, and the organisation uses qualitative methods across themes such as economic, social, and environmental benefits.	The organisation has adopted a standardised approach for describing the value of its datasets, including quantitative methods for measuring ROI.	All datasets are consistently valued using standard methods, with the valuation used to guide strategic investment decisions.
How is the value of open data communicated to stakeholders and reusers?	There is no communication or reporting on the value of open data to internal or external stakeholders.	Some general benefits of open data are communicated through qualitative reports, but there are no clear actionable insights.	Periodic reports are shared on the value of open data, often with specific use cases or examples of reuse, demonstrating the value retrospectively.	The organisation regularly publishes detailed reports on the value of its open data, including case studies, known reuses, and stakeholder feedback.	Reports are strategic and transparent, guiding future data releases and aligning with stakeholder needs. Feedback loops are established for ongoing improvement.

Strategic oversight / Open data strategy

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
Does the organisation have a defined open data strategy?	The organisation has no strategy or policy with regards to open data.	Open data initiatives are viewed as experimental or driven by external factors, without a formal strategy.	The organisation has a documented open data strategy that addresses key areas such as governance, data management, and open data publishing.	The organisation has an open data strategy that is aligned with wider organisational goals and is supported by measurable targets for implementation.	Open data is a critical component of the organisation's overall strategy, and it is continuously reviewed to ensure alignment with evolving goals.
Who is responsible for delivering the open data strategy?	There is no clear ownership or accountability for open data within the organisation.	Some parts of the organisation, such as project teams or departments, have developed their own strategies for open data.	Responsibility for the open data strategy is assigned at the senior management level, and ownership for data processes is well-defined.	Senior management is fully engaged, and performance assessment of key executives is tied to the delivery of the open data strategy.	There is broad organisational ownership of the open data strategy, with clear roles and responsibilities for its ongoing evolution and delivery.
How does the organisation measure the impact and alignment of the open data strategy?	There are no formal metrics or goals associated with the open data strategy.	Some benefits of open data are identified, but there are no clear metrics for measuring its impact.	Measurable targets are set for the implementation of the open data strategy, with regular reviews of progress.	The organisation tracks the performance of the open data strategy through defined metrics that are aligned with organisational objectives.	Metrics and goals are regularly reviewed and updated, ensuring alignment with organisational priorities and driving continuous improvement.

Strategic oversight / Asset catalogue

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How is the organisation's asset catalogue created and maintained?	There is no systematic approach to managing data sources as assets, and no asset catalogue exists.	Individual teams or projects maintain separate directories of the data assets they use, but there is no central coordination.	An organisation-wide data asset catalogue has been developed to identify key datasets being published and used.	The catalogue is kept up to date and includes all high-value datasets across the organisation.	The organisation has an exhaustive asset catalogue that includes all datasets, not just high-value ones, and it is routinely maintained.
How comprehensive is the asset catalogue and how is it managed?	There is no formal method for managing or updating the catalogue.	Some teams or departments manage their own catalogues, but there is limited coordination or formal process for updating them.	The organisation's high-value datasets are included in the catalogue, but there are gaps in comprehensiveness or coordination across departments.	The catalogue includes all datasets that are used or published by the organisation, and there is a formal process in place for ensuring it is regularly updated.	The asset catalogue is managed comprehensively, and its upkeep is fully integrated into the organisation's data management strategy, with clear accountability.
How is the asset catalogue used and applied within the organisation?	The asset catalogue, if it exists, is not used to inform decision-making or project planning.	Some teams make use of the asset catalogue to avoid duplicating datasets, but its application is inconsistent across the organisation.	New projects and products attempt to reuse datasets referenced in the catalogue to prevent unnecessary duplication.	The catalogue is a critical resource for project planning, and the organisation strives for efficiency by reusing existing datasets whenever possible.	The organisation actively identifies overlaps and commonalities between datasets in the catalogue, achieving cost and efficiency savings by aligning or consolidating datasets.
Is the asset catalogue shared externally, and how is it used to improve transparency?	There is no publicly available asset catalogue, and no external transparency around the organisation's data holdings.	Some information about data assets is shared externally, but it is sporadic and incomplete.	Elements of the organisation's asset catalogue are publicly available as open data, providing transparency into key datasets.	The asset catalogue is regularly published and includes details about datasets that have not yet been released to help external users understand upcoming resources.	The organisation publishes its entire asset catalogue, including metadata and descriptions, and actively engages with external stakeholders to improve the quality and relevance of the datasets it holds.

Strategic oversight / Responsible data stewardship

	1. Initial	2. Repeatable	3. Defined	4. Managed	5. Optimising
How well does the organisation understand and assign responsibilities for data stewardship?	There is little to no understanding of the concept of data stewardship, and responsibilities are undefined.	There are defined responsibilities around data stewardship, including collecting, using, and sharing data. A specific job role may exist for these tasks.	The organisation has a clear, public identity as a steward of data, with committed responsibilities for data collection, sharing, and use.	Data stewardship responsibilities include publishing open data, securely sharing sensitive data, and building and maintaining data infrastructure.	The organisation has a system in place for continually assessing data stewardship responsibilities, ensuring data is used for public benefit and mitigating harm.
How does the organisation demonstrate and improve its commitment to responsible data stewardship?	There is no public commitment or action plan regarding responsible data stewardship.	Some public actions are taken to demonstrate responsible data stewardship, but these are limited to basic compliance with regulations.	The organisation demonstrates a clear, public commitment to responsible data stewardship, with ongoing actions and responsibilities.	The organisation adopts a systemic, iterative process to ensure data is used ethically, addressing public benefit and structural inequalities.	The organisation shows leadership in responsible data stewardship, with a proven public track record, and actively helps other organisations on their stewardship journey.