data.europa.eu

Measuring Open Data Maturity

Eighth edition, 2022

The purpose of this document is to present an overview of the yearly open data maturity assessment adopted by data.europa.eu (formerly conducted by the European Data Portal).

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1 Background and objective of the landscaping exercise

Since its launch in 2015, data.europa.eu[1] (formerly conducted by the European Data Portal) has been the main point of access at EU level to find public sector information published across Europe. Data.europa.eu covers a broad range of activities such as deploying, maintaining, and updating the portal's infrastructure as well as providing learning material and research reports on various open data topics in the data.europa academy. Moreover, it assists both European institutions and national open data teams in the form of maturity assessments, tailored support, and strategic advice activities to enable their successful open data transformation.

Data.europa.eu's objective is to improve access to open data, foster high-quality open data publication at national, regional, and local level, and increase its impact. Within this remit, data.europa.eu has been conducting an annual landscaping exercise providing the EU27 countries as well as some countries outside the EU27, such as the EFTA countries and candidate countries, with an assessment of their maturity level and documenting their year-on-year progress since 2015.[2] The landscaping exercise offers a benchmarking and learning tool at both national as well as European level. It supports countries to better understand their level of maturity, to capture their progress and the areas for improvement, and benchmark this against other countries. At the same time, the landscaping provides the evidence on which both generic and targeted support activities for the EU Member States is based.

In the period 2015-2017 the annual open data maturity measurement was built on two key indicators: ´readiness` and ´maturity`, covering the policy developments at country level as well as the level of sophistication of the national open data portals. To better reflect the open data developments taking place across Europe, a major update to the landscaping methodology was carried out in 2018. The 2018 methodology made the assessment more comprehensive and set a stronger focus on the quality of open data as well as the reuse and impact derived by open data. The scope of the assessment has hence been broadened to comprise four dimensions: policy, portal, impact, and quality.

In 2019, additional layers of granularity were added to the four dimensions. The updates to the questionnaire aim to provide further impulses for the national open data teams to redirect their focus on new strategic areas, such as stronger prioritisation of high-quality open data publication, an active fostering of reuse and monitoring mechanisms of open data reuse, the development of advanced portal features, and the need for more inclusive and participative governance structures.

The Open Data Maturity assessments of 2020 and 2021 have focused on the maintenance of the methodology in order to ensure continuity and enable comparison with previous years. This year, a revision of the methodology was conducted. The goal was to further challenge European countries in their open data maturity level and keep pace with policy changes in the field. To this aim, all four dimensions and related questions were reviewed.

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[1] Data.europa.eu is the official portal for European open data. The portal was launched in the spring of 2021, integrating the pre-existing European Data Portal and European Union Open Data Portal into a single, coherent core component of the public sector data infrastructure that has been set up by the European Union, its institutions and Member States.

[2] The 2022 edition of the landscaping exercise assesses the maturity of 35 countries: The EU27; three EFTA countries: Iceland, Norway, and Switzerland, four candidate countries: Albania, Montenegro, Serbia, Ukraine; and Bosnia and Herzegovina.

For policy, portal, and quality, no major restructuring took place. Instead, questions were streamlined to better include regional and local realities and specific types of open data. In this latter respect, an important update of this year´s methodology is a stronger focus on countries´ level of preparedness for high-value datasets and the European Commission's upcoming Implementing Act. In line with this, questions regarding high-value datasets were added to all four dimensions: policy, impact, portal, and quality. These questions explicitly ask about preparatory measures that countries might have initiated in advance of the Implementing Act and the actions – taken to date.

The second major change to the 2022 methodology consists of the re-structuring of the open data impact dimension. The goal of this re-structuring is to better acknowledge the challenge countries face with assessing open data impact and to better distinguish between measuring the reuse of open data and the impact created through this reuse. In fact, as rightfully pointed out by many Member States in their feedback, having a reuse case does not equal having an impact. Therefore, the new open data impact dimension is now made up of three indicators:

1. Strategic awareness, which, as in previous assessments, investigates how important it is for countries to understand the level of reuse and the impact of open data on their territory;
2. Measuring reuse, a new indicator that analyses if and how countries, based on the above-scrutinised level of strategic awareness, measure the reuse of open data in their territory;
3. Creates impact, which looks at the impact created by open data reuse on the four impact areas used in previous studies: governmental (previously called political), social, environmental, and economic impact.

2   Working definitions

This section provides a working definition of what is to be understood as open data:

Open (government) data refers to the information collected, produced or paid for by the public bodies (also referred to as Public Sector Information) and made freely available for reuse for any purpose.

Open data cannot be considered open if it is not accompanied by a licence that ensures its free reuse. Depending on the type of licences data is published under, the licence might stipulate that:
o Those who use the data must credit whoever is publishing it (this is called attribution)
o Those who combine the data with other data must release the results as open data as well (this is called share-alike).
These principles for open data are described in detail in the Open Definition.[3]

Public Sector Information is information collected by the public sector. The PSI Directives of 2003 and 2013 and the Open Data Directive of 2019[4] provide a common legal framework for a European market for government-held data (Public Sector Information).

The Open Data Directive aims to overcome the barriers that still prevent the full reuse of public sector information by encouraging Member States to facilitate the reuse of public sector data with a specific

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3 http://opendefinition.org/
4 Directive 2003/98/EC of 17 November 2003, Directive 2013/37/EU of 26 June 2013, Directive (EU)2019/1024 of 16 July 2019

focus on publishing datasets that have a high potential economic and societal impact (the so-called high-value datasets).[5] This encouragement should take the form of an implementing regulation that is expected to be adopted in late 2022 or early 2023 and begin to apply 16 months later.

3   Work approach

To perform the landscaping exercise, several activities are conducted on a yearly basis:

- o *Step 1: Refine and update the landscaping methodology and questionnaire*
- o *Step 2: Coordinate and assist national teams in filling out the landscaping questionnaire*
- o *Step 3: Analyse and validate the data together with the national teams*
- o *Step 4: Complement the results with additional desk research*
- o *Step 5: Publish an in-depth report and country factsheets documenting the results and findings*
- o *Step 6: Visualise the results on the dashboard of data.europa.eu*
- o *Step 7: Produce an analytical report and webinars showcasing best practices from countries*

This year, also the questionnaires filled in by the participating countries will be made available on data.europa.eu.

4   Open data dimensions

Similar to past iterations of this research, the data was collected through a questionnaire sent to the national open data representatives working in collaboration with the European Commission and the Public Sector Information Expert Group. The questionnaire was structured against the four open data dimensions as outlined below and included detailed metrics for each dimension to assess the level of maturity.

Open Data Policy focuses on the open data policies and strategies in place in the participating European countries. It analyses the national governance models and the measures, also at regional and local level, applied to implement those policies and strategies. To achieve this, the dimension is based on the same three indicators used for last year's assessment, namely policy framework, governance of open data, and open data implementation[6]. In line with the methodology update conducted in 2022, however, some additional questions were brought in for each indicator. The aim is to better consider federal and regional realities in Europe as well as to focus on the promotion of specific types of data, such as geospatial data, citizen-generated data, and high-value datasets. In addition, the objective of the content and order update of this dimension's questions is to investigate further the alignment of European policies and strategies with the priorities of the European Commission for 2019-2024[7]. Overarching objectives and challenges of the countries are also considered.

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[5] https://digital-strategy.ec.europa.eu/en/policies/psi-open-data
[6] For further details on the sub-indicators, please refer to the methodological paper´s section on 'Detailed dimensions and metrics'.
[7] https://ec.europa.eu/info/strategy/priorities-2019-2024_en

Open Data Impact analyses the willingness, preparedness and ability of European countries to measure both the reuse and the impact of open data. Firstly, the dimension investigates how prepared countries are to measure the level of reuse and the impact of open data within their territory. This reflects the first indicator, *strategic awareness,* which was also used in previous editions of the study. Secondly, the focus is placed on if and how countries measure the reuse of open data and with which methods. This is done through the newly added indicator *measuring reuse*. Finally, the dimension concentrates on gathering data on the impact created within the four impact areas that have been considered in previous Open Data Maturity assessments, namely the governmental (previously political), societal, environmental, and economic impact areas. This is achieved through the third indicator, *created impact.*

Open Data Portal focuses on the analysis of the national open data portal. It undertakes an in-depth analysis on the features and advanced functions, providing a successful user experience. Additionally, the dimension assesses the extent to which portal managers use web analytics tools to better understand their users' needs and behaviour and update a portal's features in line with the insights gained from these analyses. The dimension examines the open data coverage across different domains, as well as the approach and measures in place to ensure the portal's sustainability.

Open Data Quality focuses on the measures adopted by portal managers to ensure the systematic harvesting of metadata from sources across the country, as well as the currency of the available metadata and, where possible, the actual data. The dimension also monitors the compliance with the DCAT-AP metadata standard, as well as the quality of deployment of the published data. The fourth dimension provides all-round quality impulses for portal managers and policymakers: using open data formats and licenses, that data is machine-readable and of high-quality, and suitable to a linked data approach.

5   Detailed dimensions and metrics

The indicators belonging to the four open data dimensions can be seen below.

Dimension 1: Open Data Policy	
1. Policy framework	
1.1	▪ Open data policies and strategy are in place at national (and eventually regional and/or local) level. ▪ The open data policies/strategy have been updated in the past year. ▪ The Open Data Directive is implemented at national level.
1.2	▪ The (national) open data strategy incentivises the reuse of open data by both the public and private sectors. ▪ The (national) open data policies/strategy incentivise access to real-time and dynamic data, citizen-generated data and/or geospatial data. ▪ The (national) open data policies/strategy incentivise the development of data inventories in the public bodies at national, regional, and local levels.
1.3	▪ Preparatory activities to identify high-value data domains to be prioritised for publication are in place. ▪ Measures are in place to assist other stakeholders' involvement in this prioritisation process.

	▪ Preparation to make sure that public bodies holding high-value datasets will denote those datasets as such in their metadata, following the publication of the related EU implementing act, has started.
1.4	▪ Open data policies/strategy align with the EU overarching priorities (e.g., Green Deal).
2. Governance of open data	
2.1	▪ An open data governance structure that ensures the publication of open data at all government levels is in place. ▪ The governance structure enables the development of open data initiatives also at local and regional levels.
2.2	▪ Details of the person or team responsible for the open data activities in your country are publicly available. ▪ A document describing the responsibilities and working approach of the national (and eventually regional and/or local) open data team is publicly available. ▪ A regular exchange between the national open data team and team maintaining the national and/or local portal(s) is ensured.
2.3	▪ Open data officers are appointed at each public body level. ▪ A regular exchange between the national open data team and open data officers is ensured. ▪ A regular exchange between the open data officers and data providers and reusers is ensured.
3. Open data implementation	
3.1	▪ Data publication plans exist at public body level and progress against these plans is monitored at national level. ▪ The number of public bodies that still charge above marginal costs is monitored.
3.2	▪ Measures are in place to address the challenges encountered in implementing the aforementioned open data policies/strategy. ▪ Holders of dynamic data are assisted in providing real-time access to their data. ▪ Holders of geo-spatial data are assisted in making this data publicly available. ▪ Citizens/organisations are assisted in providing access to citizen-generated data.
3.3	▪ Training activities for civil servants working with (open) data are in place. ▪ The trainings provide a certification and/or are formally recognised as professional development for civil servants. ▪ Society-wide open data literacy initiatives are in place.

Dimension 2: Open Data Impact

1. Strategic awareness	
1.1	▪ Reuse of open data is monitored at national, regional, or local level via, for example, the national portal. This includes high-value datasets.
1.2	▪ Activities are in place at public body level to boost and monitor the reuse of own published data.
1.3	▪ A definition of reuse is in place. ▪ A methodology to measure the impact of open data is in place or first steps in this direction have been taken.

2. Measuring reuse	

2.1	▪ Activities are in place to understand which and how datasets are reused, for example:
	  - Log files are analysed to collect and investigate how datasets are being used.
	  - Automated feedback mechanisms are in place to track users´ access to datasets.
	  - Surveys/other extensive research tools are used to measure the reuse of open data.

2.2	▪ Activities are in place to better understand reusers´ needs, for example:
	  - Feedback sessions with portal users are regularly conducted.
	  - Social media sentiment analysis is used.

2.3	▪ A process is in place to systematically gather reuse cases. ▪ Reuse cases are classified according to categories (e.g., environmental, social, economic reuse cases etc.)

3. Created impact	

3.1	▪ Data on the impact created by open data on governmental challenges is available in your country
	▪ Various reuse examples exist that showcase the impact of open data on:
	  - Increasing government efficiency and effectiveness in delivering public services,
	  - Increasing transparency and accountability of public administrations,
	  - Enabling better policy- and decision-making.

3.2	▪ Data on the impact created by open data on societal challenges is available in your country.
	▪ Various reuse examples exist that showcase the impact of open data on:
	  - Better including marginalized groups and reducing inequality,
	  - Increasing awareness on housing issues,
	  - Raising awareness on health- and wellbeing-related issues,
	  - Raising awareness on education issues.

3.3	▪ Data on the impact created by open data on environmental challenges is available in your country.
	▪ Various reuse examples exist that showcase the impact of open data on:
	  - Increasing awareness on biodiversity-related topics (e.g., air and water quality),
	  - Enabling more environmental-friendly cities,
	  - Raising awareness on climate change and connected disasters,
	  - Encouraging a lower consumption of energy based on fuel and the switch to renewables.

3.4	▪ Data on the impact created by open data on the economy is available in your country.

	▪ Various reuse examples exist that showcase the impact of open data on the following indicators of economic growth:
	    - Employment,
	    - Technology and innovation,
	    - Entrepreneurship and business creation.

Dimension 3: Open Data Portal	
1. Portal feature	
1.1	▪ Portal features ensure discoverability and access to datasets (also via APIs) and relevant content. ▪ Portal users can find documentation on the use of APIs and other tools that enable working with the aforementioned metadata.
1.2	▪ Advanced features enable users to provide content for the portal, as well as give feedback on existing content and rate featured datasets.
1.3	▪ The portal enables users to find information and news on relevant open data topics in the country.
1.4	▪ The portal enables the interaction and exchange between users and publishers as well as among reusers.
1.5	▪ Use cases are promoted via a designated section on the portal and mapped to the open data they are based on. ▪ Use cases can be submitted by different users to the portal.
1.6	▪ Preview functions to both tabular and geospatial data are available.
1.7	▪ Activities to promote the visibility and reuse of high-value datasets via the portal are planned.
2. Portal usage	
2.1	▪ The portal is responsive via both mobile and desktop.
2.2	▪ Traffic to the portal (e.g., in terms of number of unique visitors, visitor profiles, percentage of machine traffic, number of downloads according to the number of datasets etc.) is monitored by the portal team.
2.3	▪ Analytics tools are used to derive insights into users' behaviour and needs. ▪ These insights are embedded into the portal update cycles.
2.4	▪ The most and least consulted categories and datasets are known. ▪ The most used search keywords are known, and updates are performed to ensure a better discoverability of available content.
2.5	▪ API usage is monitored and used to gain insights into user profiles.
3. Data provision	
3.1	▪ Most data providers can submit data to the national portal. ▪ Data providers that do not contribute to the national portal have been identified and actions have been taken to enable data publication from these sources.
3.2	▪ Local or regional data sources are provided on the national portal. ▪ Local or regional data sources are harvested automatically.
3.2	▪ Access to real-time data is provided via the national portal. ▪ The percentage of real-time data of the total data featured on the portal is known.
3.3	▪ A separate section exists on the portal where community-sourced/citizen-generated data can be uploaded.

4. Portal sustainability	
4.1	▪ Measures are in place to ensure the portal reaches its targeted audience. ▪ The national portal has accounts and an active presence on social media platforms. ▪ The portal team helps enhance the visibility of the portal and the featured datasets by organising/attending info sessions and/or events to promote the national portal.

Dimension 4: Open Data Quality	
1. Currency (up to date) and completeness	
1.1	▪ A pre-defined approach is in place to ensure metadata is up to date.
1.2	▪ Mechanisms are in place to ensure that changes at the source are reflected with the least amount of delay on the national portal.
1.3	▪ The portal provides access to a vast range of data, both historical and current.
1.4	▪ Preparation to ensure interoperability of high-value datasets alongside the datasets of another country has started.
2. Monitoring and measures	
2.1	▪ Mechanisms are in place to monitor the quality of the metadata. ▪ Information on the quality of the metadata is available to the broader public.
2.2	▪ Guidelines and/or tools are available to assist data providers in choosing the right type of licence for their data. ▪ The compliance level in terms of correct licensing information is monitored.
2.3	▪ Support (e.g., in terms of documentation, tools, helpline etc.) is in place to assist data providers in improving the quality of data.
3. DCAT-AP Compliance	
3.1	▪ Guidelines and materials to help data providers ensure compliance with DCAT-AP are available on the national portal.
3.2	▪ Compliance with the DCAT-AP standard in terms of mandatory, recommended and optional classes, is monitored.
3.3	▪ Monitoring activities of the percentage of accessible distributions (i.e., availability of AccessURL and DownloadURL) are in place.
4. Deployment quality and linked data	
4.1	▪ A model (such as the 5-star open data model or similar) is used to assess the quality of data deployment. ▪ Activities are in place to familiarise data providers with this model and linked data.
4.2	▪ The percentage of published open data that complies with your chosen quality model is known. ▪ The improvements in terms of quality of open data deployment are monitored.

6 Scoring

The scoring of the open data maturity assessment can be seen below.

Dimension	Key metrics	Scoring	Weight
Open Data Policy		**64ß**	**25%**
	Policy framework	275	
	Governance of open data	190	
	Open data implementation	175	
Open Data Impact		**640**	**25%**
	Strategic awareness	170	
	Measuring reuse	110	
	Created impact	320	
	Governmental impact	80	
	Social impact	80	
	Environmental impact	80	
	Economic impact	80	
Open Data Portal		**650**	**25%**
	Portal features	240	
	Portal usage	150	
	Data provision	110	
	Portal sustainability	150	
Open Data Quality		**650**	**25%**
	Currency and completeness	150	
	Monitoring and measures	150	
	DCAT-AP compliance	180	
	Deployment quality and linked data	170	
Total		**2540**	**100%**

6 Output

The output of the annual open data maturity assessment[8] consists of:

- o **The open data maturity report** supports countries to better understand their level of maturity, to capture their progress and the areas for improvement, and benchmark this against other countries. Additionally, the report provides an overview of best practices implemented across Europe that could be transferred to other national and local contexts.
- o **The open data maturity dashboard** presents the detailed country scores per dimension as well as visualisations of the maturity levels across Europe.
- o **The customised country factsheets** provide a more detailed insight at national level into the results of the four open data dimensions in comparison with EU27 average and the results from previous years.
- o **The questionnaires filled in by participating countries** to allow even more cross-learning and increase transparency in the assessment process.

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[8] All output material from the 2022 open data maturity assessment and previous editions can be found at:
https://data.europa.eu/en/publications/open-data-maturity/2022