

Framework for open data maturity – Country profiles and clusters

Rethinking approaches and performances



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Executive summary

The **open data maturity assessment** of the Publications Office of the European Union (Publications Office) and the European Commission (the Commission) is a highly recognised and widely known study in the field of open data. It evaluates the progress and effectiveness of open data initiatives in Europe across four thematic dimensions intended to capture the end-to-end value chain of open data: policy, portal, quality and impact. The current open data maturity levels group countries into four categories: (1) beginners, (2) followers, (3) fast-trackers and (4) trendsetters.

In order to foster **more effective peer-to-peer learning** and to better deliver tailored communication and support, an explorative profiling and clustering analysis was conducted. Beyond the existing absolute performance groups, profiles help to better understand the open data approaches of countries and how they go about improving their open data practices. Macro country clusters help to compare countries that are relatively similar in terms of economic, social, geographical, political, data and digital background characteristics.

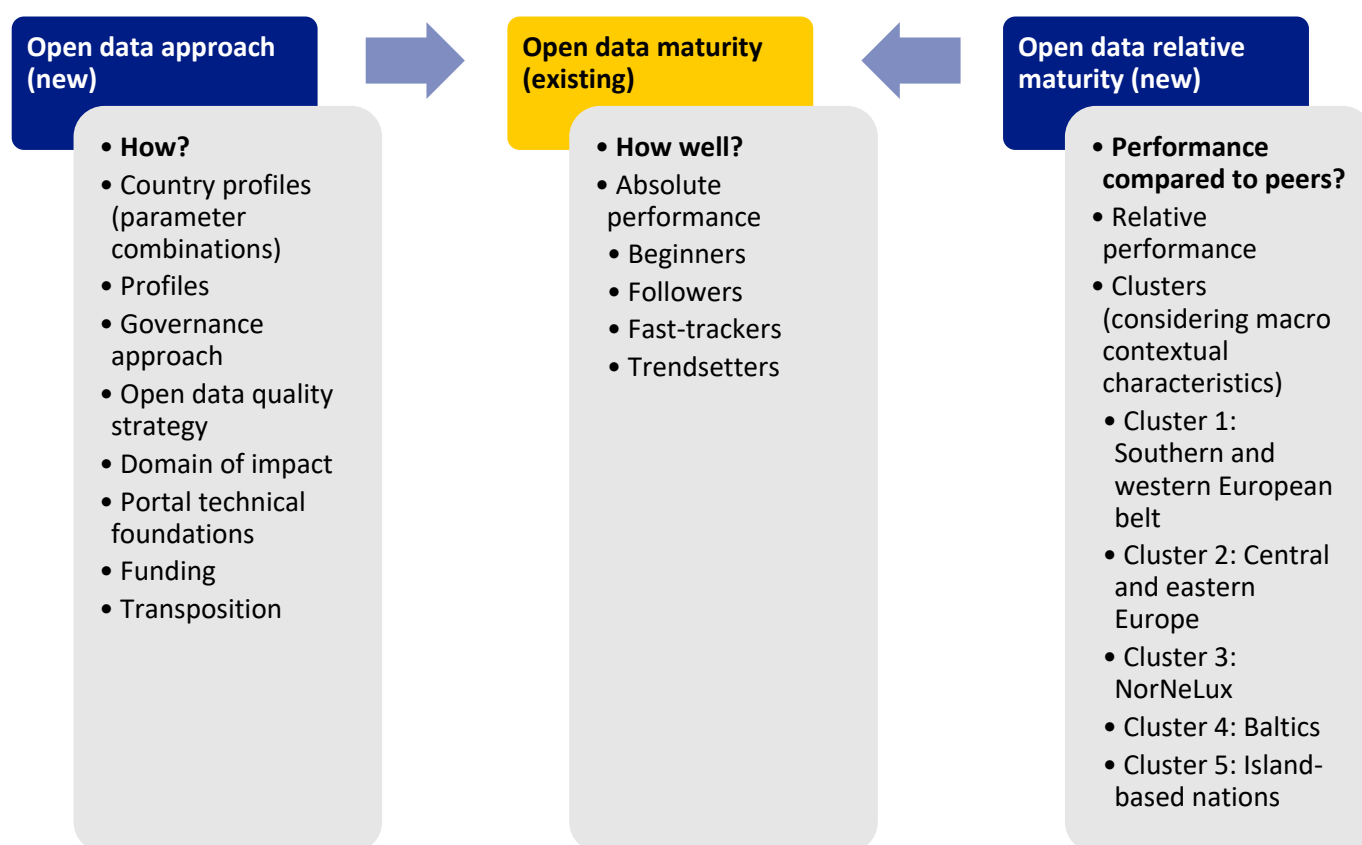


Figure 1. Framework of existing open data maturity performance groups and newly explored open data profiles and macro country clusters

By combining desk research, questionnaire data and statistical analysis, open data profiles and macro clusters were identified. Six parameters were considered to be the most effective to describe a **country's open data descriptive profile**: governance approach, open data quality strategy, domain of impact, portal foundations, funding and transposition of the Open Data Directive. Each country profile shows a unique mixture of open data approaches, orientations and stances. How countries approach open data and put policies into practice may explain performance differences. For example, some countries may show signs of a top-down governance approach, with an open data quality strategy focused on depth and richness of data, all-round impact, standardised portal technical foundations, high funding levels and the directive amended into existing law. At the same time, other countries report a hybrid governance approach, with an open data quality strategy focused on the diversity of open data types, narrower and more specialised impact, custom portal technical foundations, low funding and a multi-instrument approach of

transposing the Open Data Directive. Better understanding these characteristics helps to comprehend how results come about and whether other countries should follow such examples.

In addition, **macro country clusters** were identified using a wide range of 19 statistical indicators in order for countries to find the most relevant peer countries. The five clusters of countries with the most commonalities are: the southern and western European belt (Belgium, Germany, Greece, Spain, France, Italy, Portugal), central and eastern Europe (Bulgaria, Czechia, Croatia, Hungary, Austria, Poland, Romania, Slovenia, Slovakia), NorNeLux (Denmark, Luxembourg, Netherlands, Finland, Sweden), Baltics (Estonia, Latvia, Lithuania) and island-based nations (Ireland, Cyprus, Malta). These countries are most comparable when looking at macro-economic, social, geographical, political, data and digital characteristics. Yet, the overall open data maturity levels of countries within a cluster may differ. In order to bridge performance gaps with peers, countries may examine the open data profiles of peer countries more closely and exchange good practices, either in the context of the European Union (EU) or bilaterally.

Additional descriptive profiles can be developed for both the EU Member States and other participating countries. However, specific data gaps must be addressed before the macro-level country clusters can be expanded to include non-EU countries in future editions of the open data maturity assessment.

1. Introduction

1.1. Context and current open data maturity country profiles

The **open data maturity assessment** of the Publications Office and the Commission is a highly recognised and widely known study in the field of open data ⁽¹⁾. It evaluates the progress and effectiveness of open data initiatives across four thematic dimensions intended to capture the end-to-end value chain of open data: policy, portal, quality and impact. In particular, the assessment measures the progress of European countries in making public sector information available and stimulating its reuse, in line with Directive (EU) 2019/1024, also known as the Open Data Directive ⁽²⁾. In the 10th edition of the measurement in 2024, a total of 34 countries were assessed: the 27 Member States, 3 European Free Trade Association (EFTA) countries (Iceland, Norway and Switzerland) and 4 EU candidate countries (Albania, Bosnia and Herzegovina, Serbia and Ukraine).

Ever since the first open data maturity report in 2015, Member States and other participating countries have been grouped based on their overall open data performance. In general, such typologies promote peer learning and allow more targeted follow-up actions. The current open data maturity levels **group countries into four categories**: (1) beginners, (2) followers, (3) fast-trackers and (4) trendsetters.

Cluster groups based on overall maturity score

EU Member States, EFTA countries and candidate countries

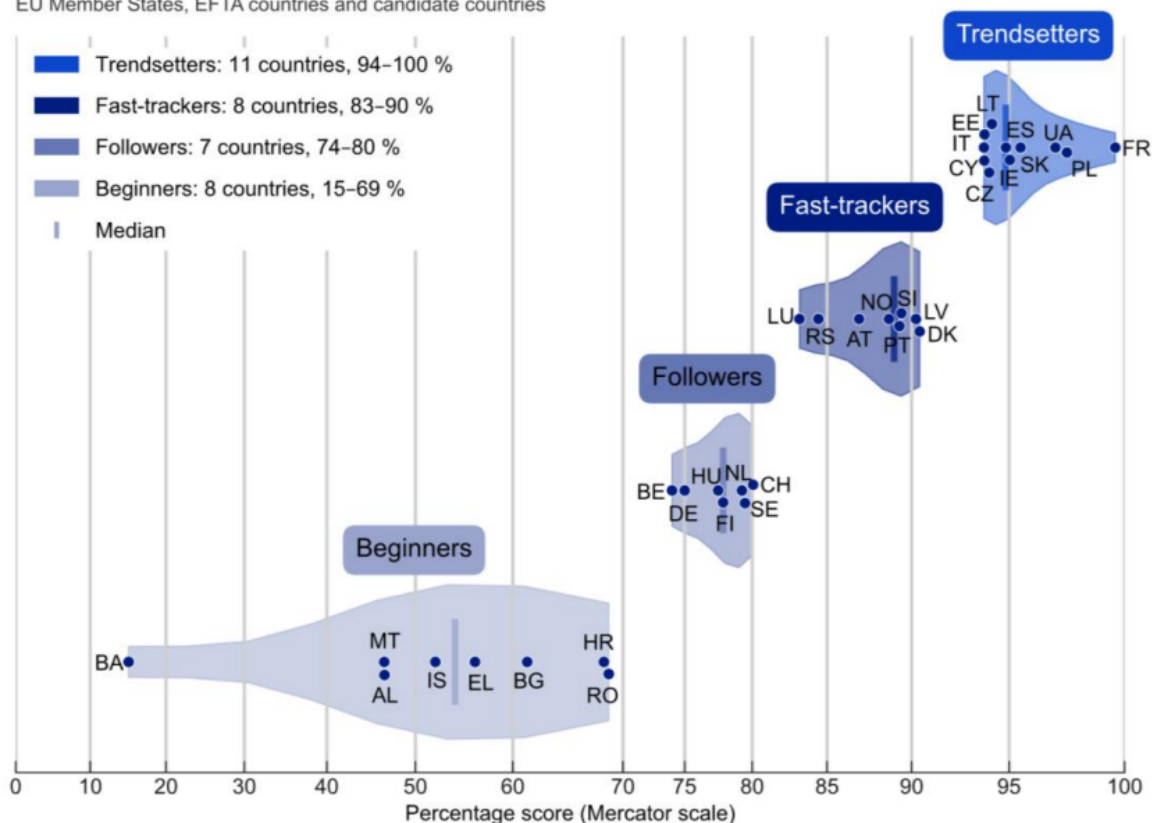


Figure 2. Four-category groups of participating countries based on overall maturity score (2024)

Source: Open data maturity assessment, <https://data.europa.eu/en/open-data-maturity/2024>.

⁽¹⁾ European Data Portal, 'Open data maturity – Previous editions', European Data Portal website, <https://data.europa.eu/en/publications/open-data-maturity>.

⁽²⁾ Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, OJ L 172, 26.6.2019, pp. 56–83, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019L1024>.

These groups are based on the absolute overall open data maturity score. To group the countries, overall open data maturity scores are plotted from lowest to highest. Groups are demarcated where observable gaps in the ordered scores are identified. The distribution of composite maturity scores is skewed towards higher scores. The groups in the 2024 report were as follows.

- **Beginners** (overall maturity score of 15–69 %): Bosnia and Herzegovina (BA), Albania (AL), Malta (MT), Iceland (IS), Greece (EL), Bulgaria (BG), Croatia (HR) and Romania (RO).
- **Followers** (overall maturity score of 74–80 %): Belgium (BE), Germany (DE), Hungary (HU), Finland (FI), Netherlands (NL), Sweden (SE) and Switzerland (CH).
- **Fast-trackers** (overall maturity score of 83–90 %): Luxembourg (LU), Serbia (RS), Austria (AT), Norway (NO), Portugal (PT), Slovenia (SI), Latvia (LV) and Denmark (DK).
- **Trendsetters** (overall maturity score of 94–100 %): Cyprus (CY), Estonia (EE), Italy (IT), Czechia (CZ), Lithuania (LT), Spain (ES), Ireland (IE), Slovakia (SK), Ukraine (UA), Poland (PL) and France (FR).

1.2. The value of open data maturity clusters and the need to explore alternatives

The four existing country groups help countries to understand and communicate their absolute position on the European open data maturity spectrum. Despite serving this purpose over the past years, it is clear from conversations with Member States and reflections by the Publications Office that these groupings are not always appropriate for a contextualised **comparison among countries**. For instance, countries within the same performance group may differ highly in terms of size, (data) infrastructure and reuser population, for example, but they are nonetheless grouped together due to their open data maturity scores. This presents two key challenges:

- (1) a decontextualised interpretation of performance which may risk undervaluing progress or challenges over time; and
- (2) reduced opportunity for meaningful peer-to-peer learning, as countries may struggle to identify relevant peers from whom they can learn.

Therefore, to more accurately reflect countries' open data maturity, foster more effective peer-to-peer learning and better deliver tailored communication and support, the Publications Office is aiming to **develop a framework for 'profiling and clustering' countries based on intrinsic characteristics** and relevant descriptive parameters. This entails developing two metrics which, when viewed with the open data maturity scores, would enable a layered approach to evaluating open data maturity. As displayed in Figure 3, the first new layer would be **open data descriptive profiles**, which are defined as a structured set of descriptive parameters that characterise how countries implement open data in practice, providing a contextual and practice-oriented view of their behaviours and approaches. The second new layer would be **macro country clusters**, which is defined as groupings of countries based on shared intrinsic characteristics – such as economic, socio-cultural, geographical, political and digital factors – that, while external to open data, significantly influence its implementation. While the open data maturity scores show what countries achieve, the descriptive profiles explain how they achieve it and the macro country clusters provide the context for what those achievements mean, given each country's broader characteristics.

Adding these profiles and clusters to the open data maturity report could benefit several stakeholders of the European Data Portal. For policymakers, an exploration of meaningful profiles and clusters helps to tailor future policy actions and learn more effectively from peer countries. For media partners of the European Data Portal the presentation of findings into profiles and clusters opens up new ways to write news articles about the annual open data maturity assessment report and the progress made. Citizens, educational stakeholders and private sector reusers are also expected to benefit from the publication materials. Better understanding open data approaches (open data descriptive profiles) and relative performance (macro country clusters), may help them to better spot new reuse opportunities within the more specific context of their Member State.

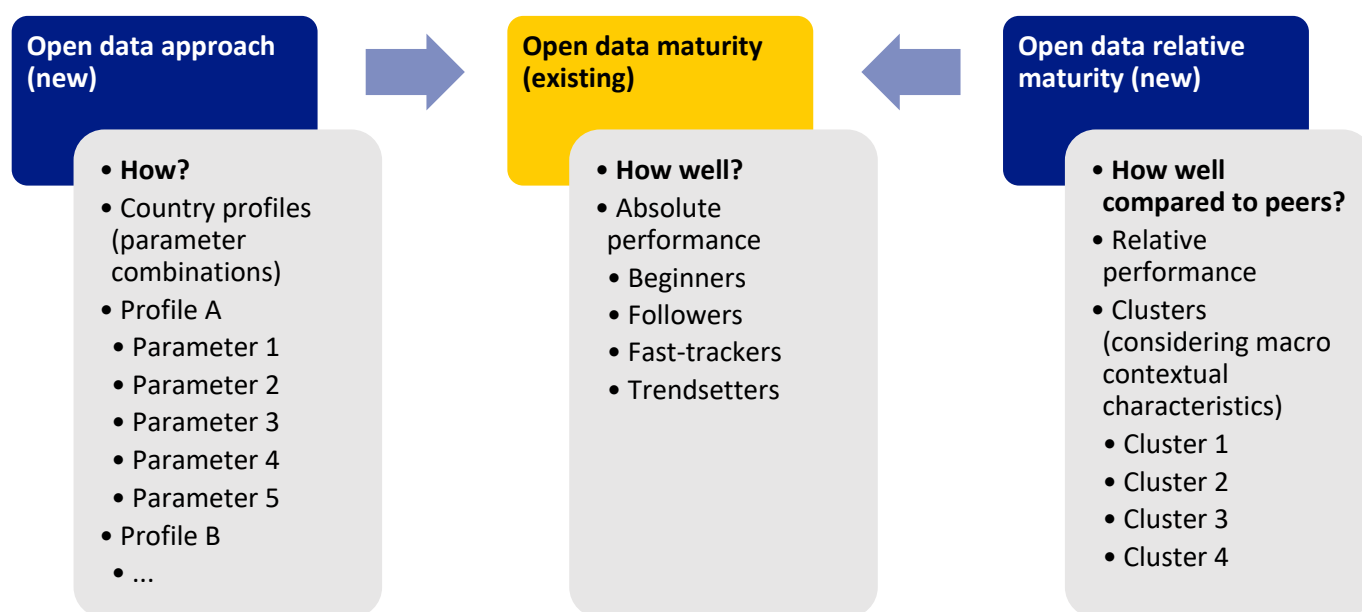


Figure 3. Linkages between the open data profiles, open data maturity performance and macro country clusters

The country profiles and clusters developed in this report can be implemented at a later stage, for example in the **2026 edition of the open data maturity assessment**. The Publications Office has also already launched the open data maturity mini site ⁽³⁾. Country profiling can become a key differentiator of the mini site, delivering value far beyond the static report. By grouping countries based on intrinsic characteristics, it transforms a complex, diverse dataset into an intuitive experience. Instead of manually scanning dozens of profiles, users can quickly identify relevant peers, benchmark performance in context and focus on targeted learning. Furthermore, this approach turns raw data into actionable insight, fostering smarter decision-making and more meaningful collaboration.

The following **research questions** have guided this exploratory analysis.

- (1) What parameters best reflect the open data performance and characteristics of the EU-27?
- (2) How are intrinsic country characteristics associated with national performance across the four dimensions of open data maturity?
 - (a) Policy: what institutional or legal factors shape a country's approach to open data policy?
 - (b) Portal: what role does user feedback or participatory design play in shaping the evolution of open data portals, how are the management, maintenance and strategic development of national open data portals structured and organised and how does this impact usability and sustainability?
 - (c) Quality: what infrastructure, technical capabilities or standards (e.g. ICT infrastructure, interoperability frameworks) support the publication of high-quality open data?
 - (d) Impact: how do digital literacy levels influence the observed impact of open data?
- (3) What is the feasibility of extending this profiling framework to non-EU countries?
- (4) How can these parameters promote peer-to-peer learning and inform actionable policy directions?

Chapter 2 of this report details the methodological approach of the analysis. Chapter 3 presents the findings from the desk research and the insights about the identified open data descriptive profiles and the macro country clusters. In Chapter 4 the report concludes with the main observations and recommendations for future editions of the open data maturity assessment.

⁽³⁾ The 2024 edition of the mini site is available on the European Data Portal website, via <https://data.europa.eu/en/open-data-maturity/2024>.

2. Methodological approach

In order to explore open data descriptive profiles and macro country clusters, **desk research was combined with analysing the open data maturity questionnaire and a series of statistical sources**. Importantly, this pilot serves testing purposes. It should not be interpreted as the beginning of a recurring data collection process under the open data maturity assessment. In addition, this exercise should lead to only minimal or no changes to the open data maturity questionnaire. Any future integration into the regular open data maturity assessment cycle would require a separate decision and planning process from the Publications Office. Yet, the pilot study does provide the necessary information on measurement frequency and periodicity in order to assess the feasibility of regularly updating the country profile and cluster information and the sustainability of maintaining it over time.

Desk research was used to explore conceptual models and potential profiling and clustering indicators. Other studies in the area of data-driven and digital governments show different ways to profile and cluster Member States based on performances and rankings. Along with studies from various international and supranational organisations, private sector publications were analysed.

Data from the **open data maturity questionnaire** was used as the main source for populating the open data maturity profile parameters for the EU-27. This includes values and properties related to the four dimensions of the open data maturity assessment. The relevant profiles were constructed looking at the combination of values and properties. This allows for analysing how countries with similar approaches and country profiles perform compared to each other in terms of open data maturity scores.

Statistical sources were used to develop the macro country clusters. Factors include economic, social and cultural, geographical, political and digital country characteristics. The more similar these contexts, the more effective the comparison of countries is expected to be. This helps to understand why some countries may underperform or overperform relative to their peers. Given the scope and aim of the analysis, existing and readily available data was taken into account. Specific inputs from the EU-27 were not necessary, thus avoiding the burden of data collection.

Government representatives from Greece (beginner), Germany (follower) and Slovakia (trendsetter) were consulted to **validate** the framework for open data maturity descriptive profiles and macro clusters. Openly shared views and feedback on a draft framework helped to improve and strengthen the results of the analysis. After standardising and completing the open data profiles and macro country clusters for the EU-27, the feasibility of extending the framework to non-EU countries was assessed ⁽⁴⁾. Relevant recommendations were listed, such as the additional data collection that would be needed for Iceland, Norway and Switzerland, and for Albania, Bosnia and Herzegovina, Serbia and Ukraine.

⁽⁴⁾ All resulting data can be found on the European Data Portal website, via <https://doi.org/10.2906/929249698311897>.

3. Findings

3.1. Exploration of conceptual models and country profiles for the EU-27

Member States have several characteristics in common. However, one-on-one comparisons are often difficult to make. As a consequence, there are many different ways to group Member States and make meaningful comparisons. In order to find the most relevant approaches to profiles and clustering, a series of **other studies in the field of (open) data and digital government** were analysed on the use of country profiles and clusters.

Besides the open data maturity assessment, various international open data measurements have been performed over the years. These comparative studies also provide different ways to profile countries and cluster them. For example, the **Open Data Inventory** looks into data coverage and openness, in order to rank countries both globally and based on geographical regions ⁽⁵⁾. The country contextual factors included in the inventory for comparative purposes are related to legal frameworks, data commitments, global indexes of statistical capacity and global indexes of governance and human development. The **Open Data Barometer** is a global measure of how governments publish and use open data for accountability, innovation and social impact ⁽⁶⁾. In terms of country clustering, it distinguishes between governments that have adopted the Open Data Charter and those that, as G20 (Group of Twenty) members, have committed to the G20 Anti-Corruption Open Data Principles. It compares both clusters to analyse how international commitments like these influence open data performance. In a similar way, the **Global Data Barometer** provides countries' overall scores, based on performance in data governance, data capabilities and data availability. The analysis takes into account key challenges and development areas, such as governance foundations, critical competencies, public finance, public procurement and political integrity ⁽⁷⁾. The **Global Open Data Index** was used to look into multiple types of open datasets and their public availability and quality, without comparing countries on the basis of other contextual factors ⁽⁸⁾. Moreover, the Organisation for Economic Cooperation and Development (OECD) **Open, Useful and Re-usable data Index** provides insights into data-related availability, accessibility and government support ⁽⁹⁾. In addition, the OECD **Digital Government Index** assesses the following parameters: digital by design, data-driven public sector, government as a platform, open by default, user-driven approaches and proactiveness. Findings from both OECD measurement frameworks are specifically analysed in terms of performance gaps between the cluster of OECD member countries and accession countries.

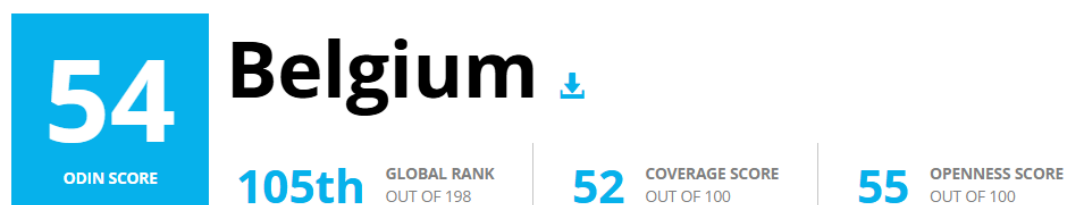
⁽⁵⁾ Open Data Watch, 'Open Data Inventory (ODIN)', Open Data Watch website, 2025, <https://odin.opendatawatch.com/>.

⁽⁶⁾ Open Data Barometer, 'The Open Data Barometer', Open Data Barometer website, https://opendatabarometer.org/?_year=2017&indicator=ODB.

⁽⁷⁾ Global Data Barometer, 'Global Data Barometer', Global Data Barometer website, 2025, <https://globaldatabarometer.org/>.

⁽⁸⁾ Global Open Data Index, 'Tracking the State of Open Government Data', Global Open Data Index website, <http://index.okfn.org/>.

⁽⁹⁾ OECD, '2023 OECD Open, Useful and Re-usable data (OURdata) Index: Results and key findings', OECD Public Governance Policy Papers, No 43, OECD Publishing, Paris, <https://doi.org/10.1787/a37f51c3-en>; OECD, 'Digital government', OECD website, <https://www.oecd.org/en/topics/digital-government.html>.



Summary	Coverage	Openness	Indicators	Recommendations	Country Context
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Summary of Results

The Open Data Inventory (ODIN) measures how complete a country's statistical offerings are and whether their data meet international standards of openness. **Belgium ranks 105th in the Open Data Inventory 2024 with an overall score of 54.** The overall score is a combination of a data coverage subscore of 52 and a data openness subscore of 55.

The following tables show the coverage and openness scores for each data category. For more detailed information, view the [Coverage](#) and [Openness](#) tabs.

Rankings

	Coverage	Openness	Overall
Global OUT OF 198	94th	104th	105th
Western Europe OUT OF 9	7th	8th	8th

Category Scores ⚙️

Data Category	Coverage	Openness	Overall
Population and vital statistics	70	70	70
Education facilities	0	0	0
Education outcomes	0	70	35
Health facilities	40	50	45
Health outcomes	0	0	0
Reproductive health	60	40	50
Food security and nutrition	25	40	33
Gender statistics	40	60	50
Crime and justice	0	0	0
Poverty and income	70	60	65
Social Statistics subscore	31	39	35
National accounts	75	90	83
Labor	80	50	65
Price indexes	75	70	72
Government finance	75	90	83

Understanding the Scores

Each category receives a coverage and openness score. Coverage scores are based on five coverage elements* and openness scores are based on five openness elements. Overall scores are an average of all 10 criteria.

- Score 100**
Data in this category fulfill all ODIN coverage/openness criteria.
- Scores 81-99**
Data in this category fulfill most ODIN coverage/openness criteria.
- Scores 61-80**
Data in this category fulfill several ODIN coverage/openness criteria, but many important gaps remain.
- Scores 41-60**
Data in this category fulfill some ODIN coverage/openness criteria, but many important gaps remain.
- Scores 21-40**
Data in this category fulfill some ODIN coverage/openness criteria, but many important gaps remain.
- Scores 1-20**
Data in this category fulfill few ODIN coverage/openness criteria and there are significant gaps.
- Score 0**
Not enough data were published to meet the minimum threshold to receive a score.

*Some categories are only scored on 3 or 4 coverage criteria. View the coverage tab for more information.

Figure 4. Illustration of Open Data Inventory country profile

Source: Open Data Inventory, <https://odin.opendatawatch.com/Report/countryProfileUpdated/BEL?year=2024>.

Beyond the field of open data, one of the **AI Watch** publications from the Joint Research Centre of the European Commission illustrates how countries may be grouped on the basis of descriptive orientations rather than normative performance ⁽¹⁰⁾. The study explores conceptual ways to profile national AI strategies based on how much the strategy insists on three main focus areas concerning data, internal AI capacity and the external AI network.

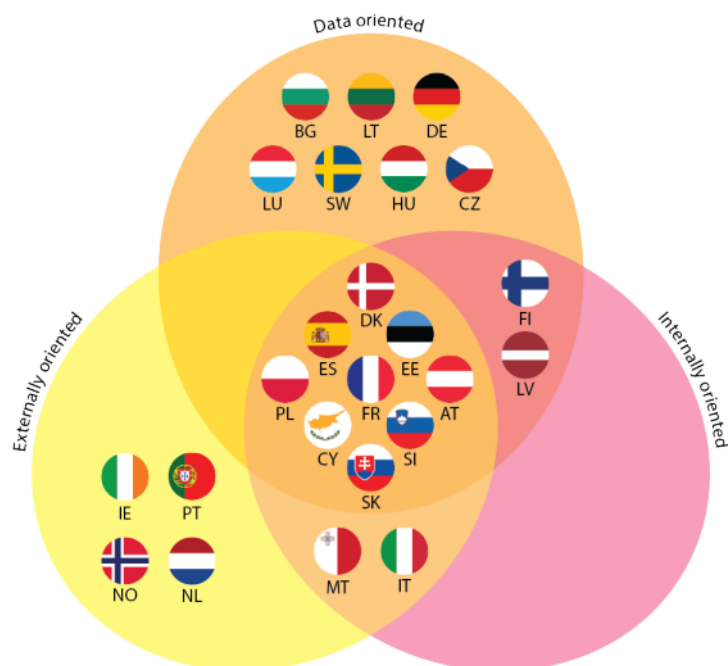


Figure 5. Clustering of national AI strategies

Source: AI Watch, https://ai-watch.ec.europa.eu/publications/ai-watch-european-landscape-use-artificial-intelligence-public-sector_en.

The United Nations **e-Government Development Index** groups countries on the basis of their overall score (low, medium, high, very high) and based on their development and income levels ⁽¹¹⁾. It also offers breakdowns by global regions and data comparisons at the country and city levels. In a similar way, the **ICT Development Index** from the International Telecommunication Union relates ICT performance to income groups, regions and gross national income per capita ⁽¹²⁾. An example of a Commission study that clusters Member States based on both absolute and relative performance is the **eGovernment Benchmark**. Member States obtain a score for a series of indicators on eGovernment provision and for the extent to which the population uses these eGovernment services. This results in a typology with five eGovernment profiles: neophytes (low digitalisation and low uptake), high potentials (low digitalisation, medium or high uptake), progressives (medium digitalisation, low uptake), builders (high digitalisation, low or medium uptake) and matures (high digitalisation, high uptake) ⁽¹³⁾. These profiles increase the comparability of Member States, as Member States in the same group should be similar and face similar challenges moving forward. The study also grouped Member States into five clusters on the basis of several homogeneous contextual background statistics, such as population size, (digital) educational skills levels, urbanisation and implementation maturity of digital infrastructure. More recent editions of the study divided eGovernment provision and uptake into four clusters: non-consolidated

⁽¹⁰⁾ Joint Research Centre, *AI Watch: European landscape on the use of artificial intelligence by the public sector*, Publications Office of the European Union, Luxembourg, 1 June 2022, https://ai-watch.ec.europa.eu/publications/ai-watch-european-landscape-use-artificial-intelligence-public-sector_en.

⁽¹¹⁾ UN e-Government Knowledgebase, 'E-Government Development Index (EGDI)', UN e-Government Knowledgebase website, 2025, <https://publicadministration.un.org/egovkb/en-us/About/Overview/E-Government-Development-Index>.

⁽¹²⁾ International Telecommunication Union, *Measuring Digital Development: The ICT Development Index 2025*, International Telecommunication Union, Geneva, 2025, https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ICT_MDD-2025-1-PDF-E.pdf.

⁽¹³⁾ European Commission, 'EU eGovernment Report 2015 shows that online public services in Europe are smart but could be smarter', European Commission website, 23 June 2015, <https://digital-strategy.ec.europa.eu/en/news/eu-egovernment-report-2015-shows-online-public-services-europe-are-smart-could-be-smarter>.

eGovernment (low digitalisation, low uptake), unexploited eGovernment (low digitalisation, high uptake), expandable eGovernment (high digitalisation, low uptake) and fruitful eGovernment (high digitalisation, high uptake) ⁽¹⁴⁾.

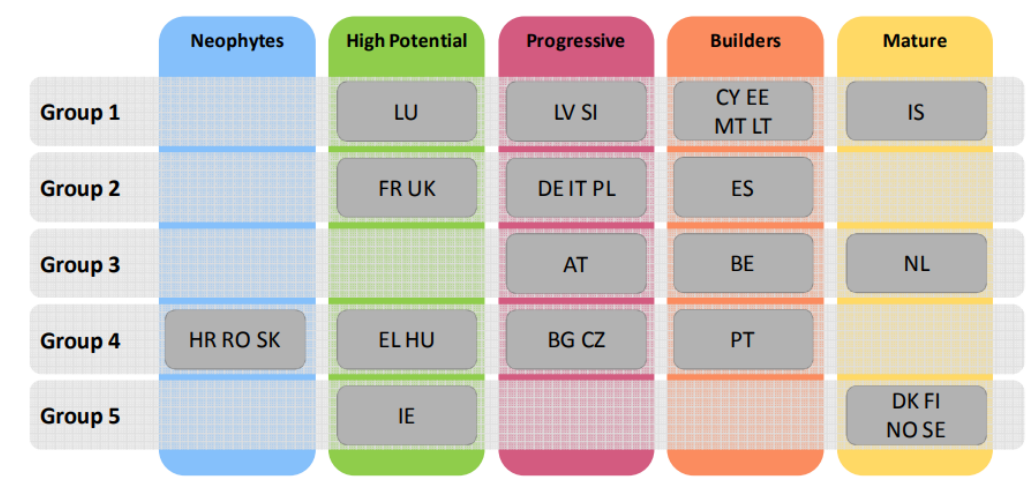


Figure 6. eGovernment Benchmark country clusters

Source: eGovernment Benchmark, <https://digital-strategy.ec.europa.eu/en/library/egovernment-benchmark-2022>.

Along with studies from various international and supranational organisations, country profiling and clustering is also visible in various private sector studies on data-driven and digital governments. For example, the Huawei **Global Digitalisation Index (GDI)** clusters countries according to their level of ICT maturity and economic development: starters (low digitalisation levels, with relatively low gross domestic product (GDP) per capita), adopters (average digitalisation levels, with average GDP per capita) and frontrunners (high digitalisation levels, with relatively high GDP per capita) ⁽¹⁵⁾. The **data-powered enterprises** survey from the Capgemini Research Institute analyses two key pillars: data foundations in terms of technology and tools, as well as data behaviours in terms of people, processes, skills and culture ⁽¹⁶⁾. Based on all underlying indicators, organisations can be characterised as: data laggards (weak data foundations, weak data behaviours), data aware (weak data foundations, strong data behaviours), data enabled (strong data foundations, weak data behaviours) or data masters (strong data foundations, strong data behaviours).

⁽¹⁴⁾ European Commission, ‘eGovernment Benchmark 2022’, European Commission website, 28 July 2022, <https://digital-strategy.ec.europa.eu/en/library/egovernment-benchmark-2022>.

⁽¹⁵⁾ Huawei, ‘Global Digitalization Index (GDI) 2024’, Huawei website, <https://www.huawei.com/en/gdi>.

⁽¹⁶⁾ Capgemini, *Data-powered enterprises: The path to data mastery*, Capgemini, 2024, https://www.capgemini.com/wp-content/uploads/2024/08/CRI_Data-powered-enterprises_22082024-V1.pdf.

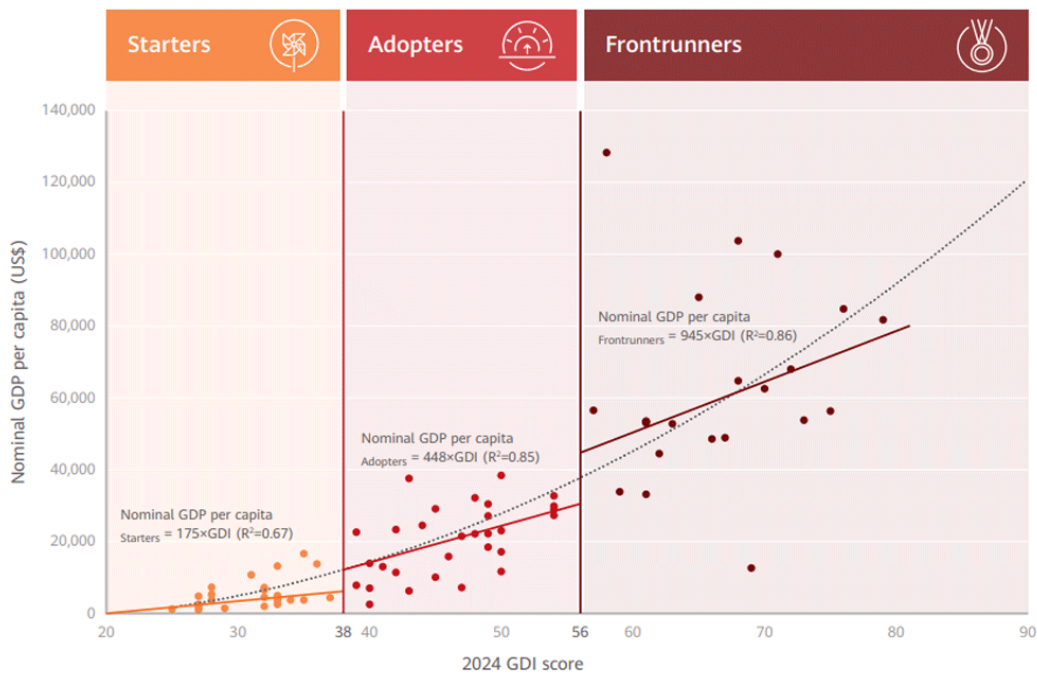


Figure 7. GDI country clusters

Source: Global Digitalisation Index, <https://www.huawei.com/en/gdi>.

Similar quadrants are presented in several publications on AI. For example, the matrix from **Gartner's AI Opportunity Radar** has two axes, both on the level of organisations⁽¹⁷⁾. It looks at whether AI augments everyday processes or creates something game-changing. Furthermore, it considers whether the technology primarily adds value to internal audiences and operations or to external client-facing audiences. The Boston Consulting Group **Distribution of AI Economies** covers six archetypes based on AI readiness and exposure: AI emergents (bottom 10 % readiness, low AI exposure), AI gradual practitioners (average readiness, low AI exposure), AI exposed practitioners (average readiness, high AI exposure), AI rising contenders (high readiness, low AI exposure) and AI steady contenders (high readiness, high AI exposure)⁽¹⁸⁾.

⁽¹⁷⁾ Gartner, 'AI in government promises automation and better decisions', Gartner website, 2025, <https://www.gartner.com/en/information-technology/topics/ai-in-government>.

⁽¹⁸⁾ Schwaerzler, C., Carrasco, M., Daniel, C., Bollyky, B., Yoshihisa, N. et al., *The AI Maturity Matrix: Which economies are ready for AI?*, Boston Consulting Group, November 2024, <https://www.bcg.com/publications/2024/which-economies-are-ready-for-ai>.

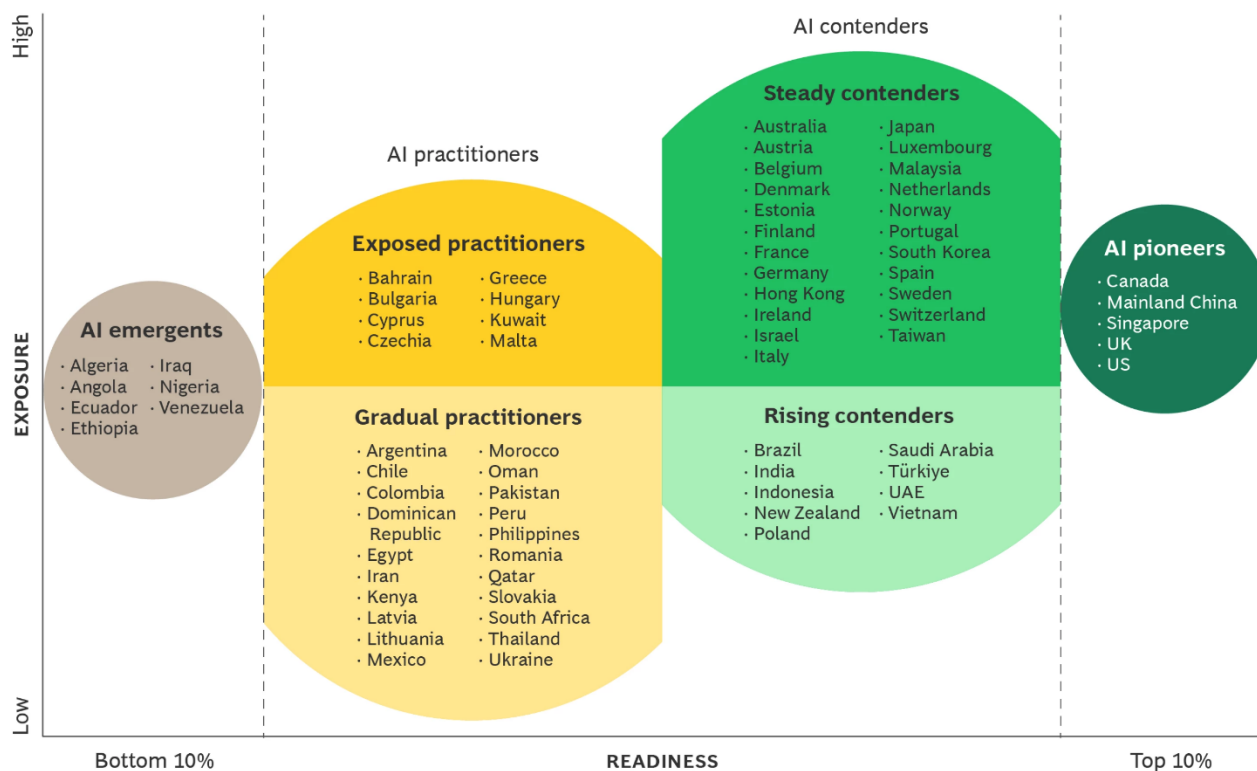


Figure 8. Distribution of economies across the archetypes of AI adoption

Source: The AI Maturity Matrix, <https://www.bcg.com/publications/2024/which-economies-are-ready-for-ai>.

The above studies show that profiling countries based on their approaches and clustering countries based on macro context variables can be done in various ways. In many studies the focus is on using macro variables, such as economic statistics, to better interpret findings and compare countries on their performance. Fewer studies look into what approach or country profile underlies performance. Hence, analysing the specific open data descriptive profiles and macro country clusters are both considered to be valuable in light of the open data maturity assessment and wider studies on data-driven governments.

3.2. Open data descriptive profiles

3.2.1. Approach

While this study aims to go beyond the normative structure of the open data maturity assessment by developing a more descriptive framework, the European Data Portal open data maturity assessment remains a valuable starting point. This is because the open data maturity assessment provides a comprehensive way to understand the development of countries in making public sector information available and stimulating its reuse. In fact, since its inception in 2015, the methodology and the concepts encompassed in the open data maturity assessment have been regularly updated in order to reflect the most prominent open data developments across Europe. Furthermore, given the breadth and depth of its coverage, the contents of the open data maturity questionnaire serve as an effective starting point for creating a descriptive framework for understanding countries' open data activities and behaviours.

This study follows a two-phase approach for developing open data descriptive profiles: first, by conceptualising the key parameters, and second, by operationalising them. Starting with the conceptualising phase, due to the normative nature of the open data maturity questionnaire and its broad groupings of questions under each dimension, the analysis deliberately moved away from its original indicator-based format. Instead, this study utilises the open data maturity questionnaire not as a fixed evaluative tool, but as a thematic foundation ⁽¹⁹⁾. In this sense, conceptualisation of the open data descriptive profiles took an inductive approach: starting with questions under each dimension and ultimately arriving at a list of descriptive parameters that describe **how** countries engage with open data based on themes that appear between questions. The process, as displayed in Figure 8, begins by ungrouping the questions from their original indicator-based structure within each dimension and examining them individually. The focus is then shifted to identifying groups of questions that represent shared descriptive characteristics or behaviours. These groups then form the basis for defining descriptive parameters through which countries' open data practices can be profiled and better understood.

Once a set of descriptive parameters have been identified within each dimension, they are then examined across dimensions to detect overlapping themes. When overlaps are found, similar parameters are merged, resulting in a more concise and integrated set of descriptive parameters that span all four dimensions. It is important to note that throughout both the initial identification and the cross-dimensional comparison phases, the parameters are continuously revised, refined and tested for coherence. This ensures that each parameter is clearly defined, avoids redundancy and captures a distinct aspect of open data behaviour. This will also entail rigorous evaluation of which questions are most relevant to distinguishing a certain parameter and which questions should be omitted from the exercise due to a lack of relevance. Nonetheless, the goal is to arrive at a focused and manageable list of parameters that are analytically meaningful and practical. By keeping the list as concise as possible, we aim to ensure relevance, maintain analytical focus and reduce unnecessary complexity.

For example, several questions from the policy dimension of the open data maturity questionnaire were identified as reflecting a country's policy approach, as opposed to other questions that assess policy implementation results. These questions were then grouped and aligned with similar approach-oriented questions from the quality, portal, and impact dimensions to consolidate related items and define a coherent parameter.

⁽¹⁹⁾ See Annex 5.1 for the full list of questions and their relevant ID.

Open data maturity questions

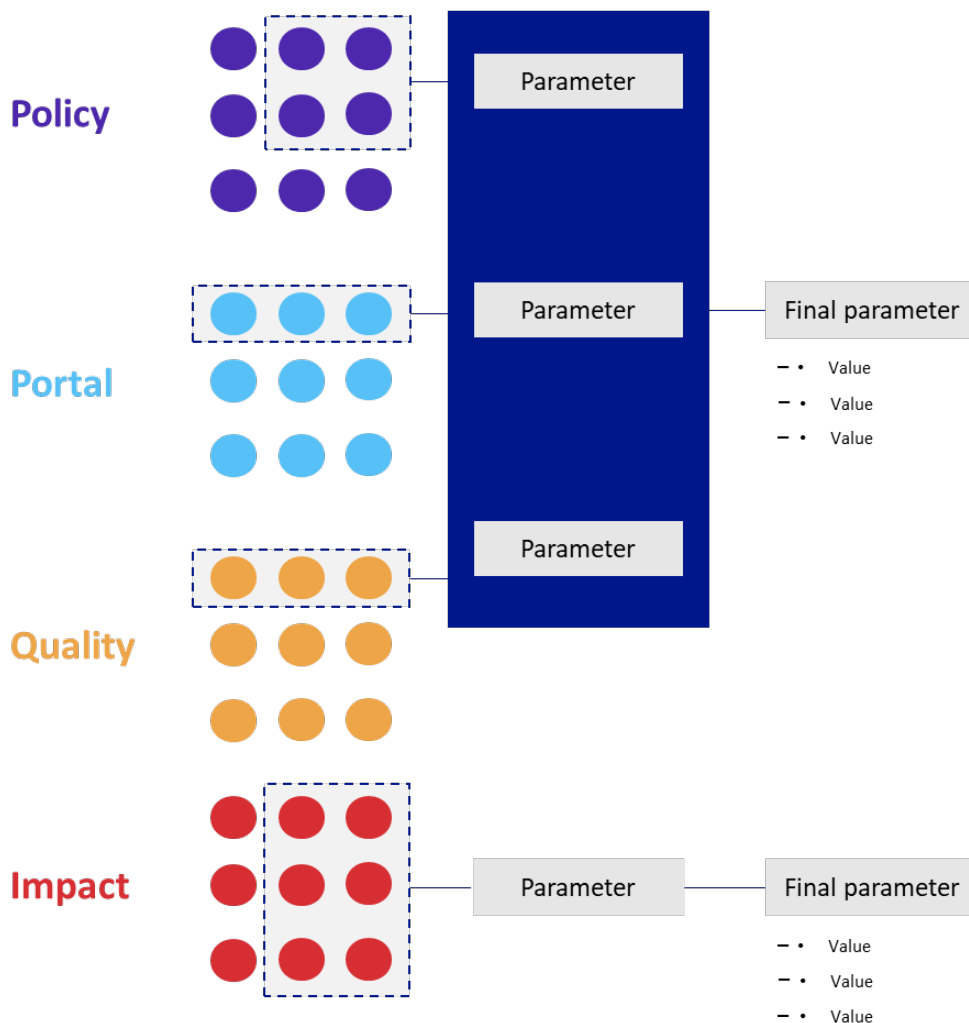


Figure 9. Open data parameter development process

Once the final set of descriptive parameters are defined, the next task is to concretise the values that can be used to measure them, which we envision as the operationalising phase. This phase is driven by the definitions of descriptive parameters that were defined in the previous step. Moreover, each parameter can be measured in one of two ways: either directly through the original questions that informed its definition, or through custom-developed metrics inspired by those questions. These values serve as operationalisations of the descriptive parameters, allowing them to be meaningfully assessed. The data sources for these values are either the direct responses provided by countries to the questions that are maintained as values under each parameter, or alternative sources where relevant. Furthermore, individual questions from the open data maturity questionnaire serve two key purposes. First, when grouped they can reveal shared descriptive traits or behaviours. Second, they can act as direct evaluative tools, i.e. a means of collecting specific data from countries about particular open data characteristics. In this sense, we utilise the questionnaire to conceptualise the country profiling framework and its parameters, and these parameters are operationalised (i.e. measured) through, but not limited to, the questions used to conceptualise them, with additional sources as well.

The final step is to profile countries based on the results of each associated value. These results provide insight into how a country behaves with respect to a specific descriptive parameter. It is important to note that this profiling framework can be seen as a dynamic and evolving tool – to be continuously updated in response to technological advancements, emerging practices and shifts in the open data landscape, just as it is in the overall open data maturity assessment methodology.

3.2.2. Findings

Conceptualising phase

The process of conceptualising descriptive parameters from the open data maturity questionnaire involved two key steps. First, we examined the wording and intent questions in order to identify commonalities in what they aimed to assess. This thematic regrouping allowed us to define a set of descriptive parameters that more accurately reflect the underlying practices and behaviours of countries in relation to open data. For example, several questions within the policy dimension focused on the presence and coherence of national strategies, legal frameworks and governance structures. These were collectively interpreted as relating to the 'strategic and legal foundations' of open data. Accordingly, we defined this parameter as: 'the existence, scope, and coherence of national and subnational open data policies, strategies and legal frameworks.' The full list of preliminary parameters can be found in the tables in Annex 5.2.

This process resulted in a total of 19 preliminary parameters: five within the policy dimension, four within the quality dimension, four within the portal dimension and six within the impact dimension. These parameters are displayed in the annex, with asterisks beside the questions that ultimately made it to the final set of parameters.

In the second step, these parameters were compared across dimensions to identify overlapping themes and reduce redundancy. As previously noted, this involved continuous revision and refinement to ensure each parameter was clearly defined, analytically meaningful and free of redundancy. Building on this foundation, multiple factors were considered when revising the original 19 parameters into a more concise and integrated set. First, we assessed cross-dimensional alignment to identify parameters that reflected similar behaviours across different dimensions. One example is the ecosystem development parameter under the policy dimension, which focused on stakeholder engagement in open data capabilities. This parameter was found to closely relate to community engagement under the portal dimension, which examined stakeholder interaction with the national portal. Due to their similarity, they were initially merged to form a unified parameter capturing stakeholder collaboration.

The second factor considered was feasibility, specifically the practicality of measuring each parameter using the available data. Parameters were evaluated based on the clarity, consistency and relevance of the underlying questions. In the case of the merged ecosystem development and community engagement parameter, it was ultimately excluded from the final set due to feasibility concerns. The associated questions and/or metrics lacked sufficient specificity to support reliable cross-country comparison. Moreover, the behaviours it aimed to capture were partially reflected in other, more robust parameters such as the governance parameter, which reduced its distinctiveness and analytical value. Another example is the original data accessibility and reusability parameter, which sought to describe how countries ensured that open data was both available and usable. While conceptually rich, it drew on 19 underlying questions from both the portal and quality dimensions, making it difficult to operationalise in a focused and consistent way. To address this, the parameter was revised and reframed into a more targeted open data supply approach, which allowed us to isolate and measure specific aspects of accessibility and reusability more effectively. This transformation reflects a broader principle in our approach: while conceptual breadth is valuable, it must be balanced with methodological clarity and practical measurability to ensure the framework remains both meaningful and usable.

This consolidation process led to a refined set of seven parameters. Following a second round of evaluation focused on the definitions and underlying questions of each parameter, the final set was narrowed down to six.

Operationalising phase

Each of the six parameters are operationalised by the most accurate and relevant source of data that enables its measurement for participating countries. In some instances, this meant keeping the questions used to conceptualise the parameter as a metric for measuring countries' approaches. For others, additional data sources (e.g. from the

European Data Portal, official documentation online) were incorporated. The full list of data sources used to operationalise each parameter is displayed in Figure 10.

Parameter	ID	Question
Governance approach	P14	How would you classify the model used for governing open data in your country?
Open data quality strategy	PT39	Does the national portal provide a way for non-official data (e.g. community-sourced or citizen-generated data) to be published?
	PT7	Does the national portal provide functionality for users to contribute datasets they have produced or enriched?
	Q23	Do you use a model (such as the 5-Star Open Data or FAIR) to assess the quality of deployment of data in your country?
	Q24	Do you conduct activities to promote and familiarise data providers with ways to ensure higher quality data?
	Q15	Does the national portal follow the DCAT-AP framework or, if not, are standards in place to ensure interoperability with DCAT-AP?
	P6	Does the national strategy/policy outline measures to incentivise the publication of and access to citizen-generated data?
Domain of impact	I12	Is any data on the impact created by open data on governmental challenges (e.g. efficiency, effectiveness, transparency, decision-making capacity) available in your country?
	I13	Is the use of open data in your country having an impact on the efficiency and effectiveness of the government (at any level) in delivering public services?
	I14	Is the use of open data in your country having an impact on transparency and accountability of public administrations?
	I15	Is the use of open data in your country having an impact on policy-making processes?
	I16	Is the use of open data in your country having an impact on decision-making processes?
	I17	Is any data on the impact created by open data on social challenges (e.g. inequality, healthcare, education) available in your country?
	I18	Is the use of open data in your country having an impact on society's ability to reduce inequality and better include minorities, migrants, and/or refugees?
	I19	Is the use of open data in your country having an impact on issues about housing in urban areas?
	I20	Is the use of open data in your country having an impact on the issues of health and wellbeing?
	I21	Is the use of open data in your country having an impact on the society's level of education and skills (e.g. data literacy)?
	I22	Is any data on the impact created by open data on environmental challenges (e.g. climate change and environmental degradation, as highlighted in the European Green Deal) available in your country?
	I23	Is the use of open data in your country having an impact on the level of protection of biodiversity (e.g. maintaining a good air and water quality)?
	I24	Is the use of open data in your country having an impact on the achievement of more environment-friendly cities (e.g., environment-friendly transport systems, waste management etc.)?
	I25	Is the use of open data in your country having an impact on the fight against climate change, for example by undertaking predictive monitoring, preventive actions, or a differentiated response to connected disasters?
	I26	Is the use of open data in your country having an impact on the consumption of energy based on fuel and the switch to renewables?
	I27	Is any data on the economic impact (e.g. GDP, employment, productivity, innovation, new businesses created etc.) of open data available in your country?
	I28	Is the use of open data in your country having an impact on the level of employment?
	I29	Is the use of open data in your country having an impact on the level of innovation and the adoption of new technologies?
	I30	Is the use of open data in your country having an impact on the level of entrepreneurship (especially of women and minorities) and business creation (especially with Small- and Medium-sized Enterprises)?
	I31	Is the use of open data in your country having an impact on the level of productivity?

Portal technical foundations	PT2	What is the technology stack of your portal (e.g. based on uData, CKAN, etc.)
Funding	R6	What is the annual budget of the national portal?
Transposition of the Open Data Directive	P1	Is there a national open data policy in your country and, if your country is an EU Member State, does this include a national legislation for the transposition of the Open Data Directive?

Figure 10. Specific questionnaire questions and data sources informing each parameter

Source: Open data maturity assessment, <https://data.europa.eu/en/open-data-maturity/2024>.

Governance approach

The **governance approach** parameter is based on question P13, which asks: ‘How would you classify the model used for governing open data in your country?’⁽²⁰⁾. Countries can choose from three governance models – top-down, hybrid or bottom-up – which are used to profile their approach to open data governance. 27 countries (Albania, Austria, Belgium, Bosnia and Herzegovina, Croatia, Denmark, Finland, France, Germany, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Spain, Sweden, Switzerland, Ukraine) reported a hybrid approach, and 7 (Bulgaria, Czechia, Estonia, Ireland, Greece, Cyprus, Slovenia) reported a top-down model. Notably, no country identified with a bottom-up model, suggesting that open data governance across Europe tends to involve some level of central coordination or mixed responsibility.

However, insights gathered through consultations with Member States reveal that the real-world governance of open data is often more nuanced than the questionnaire suggests. Specifically, Member States expressed that the concept of open data governance remains vague and underdefined as it appears in the current question listed above. In our discussions we explored the concept of open data governance with Member States and their interpretation of the ‘hybrid’ category, inquiring whether it should be understood in terms of coordination mechanisms, funding sources or even technical infrastructure. One country described a hybrid governance model as one where both central government and external actors (such as non-governmental organisations) actively contribute to the development and promotion of open data initiatives. This interpretation reflects ‘hybrid’ as a collaborative governance structure. Another country emphasised the importance of understanding constitutional and organisational structures. They noted that while their state and non-governmental organisations run their own programmes, the overarching governance is shaped by legal and institutional frameworks. This highlights that governance can not only be about coordination but also about legal authority and infrastructure. Furthermore, these sentiments highlight the need for the open data maturity questionnaire to explicitly articulate the dimensions of governance it seeks to capture.

Open data quality strategy

The **open data quality strategy** parameter captures whether the orientation of a country’s open data efforts is more tailored towards diversity, depth or both. When profiled, most countries (over 60 %) adopt a depth-oriented approach, indicating that currently there is a strong emphasis on data richness, technical standards and interoperability rather than expanding the diversity of data sources.

A depth-oriented approach implies a country places greater focus on ensuring that the open data published is of high quality, maintaining technical standards and interoperability. To assess this, three questions from the open data maturity questionnaire are considered, specifically measuring whether the national portal complies with interoperability standards (data catalogue vocabulary application profile for data portals in Europe (DCAT-AP)) (Q15), whether a formal model such as the five-star framework or the FAIR (findability, accessibility, interoperability and

⁽²⁰⁾ See Annex for the full list of questions and their relevant ID.

reusability) framework is used to assess data quality (Q23) and whether activities are undertaken to promote and familiarise data providers with practices that ensure high-quality data publication (Q24) ⁽²¹⁾.

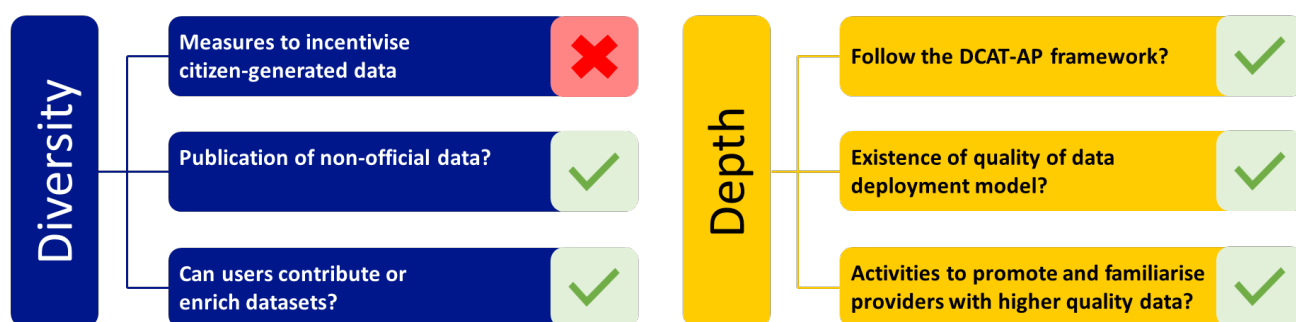
A diversity-oriented approach implies a greater focus on publishing a greater variety of data types. It reflects openness to community participation and alternative data generation. To assess a diversity-oriented approach, three questions from the questionnaire are used, specifically measuring whether the national portal allows user-contributed datasets (PT7), whether it supports the publication of non-official data (PT39) and whether the national strategy/policy supports the publication of and access to citizen generated data (P6).

In order to distinguish a specific profile for countries under this parameter, the responses to these two sets of questions were examined, one for measuring data diversity and one for measuring data depth, analysing the distribution of 'yes' answers within each set. The profiling logic is as follows: a country is considered more 'depth-oriented' if it has a greater number of 'yes' responses to depth-related questions than to diversity-related ones, and vice versa for a 'diversity-oriented' classification. If the number of 'yes' responses is equal across both sets of questions – or if all responses are 'yes' – the country is categorised as having a 'balanced approach.' Finally, if all responses are either 'no' or 'I don't know', the country is classified as 'unclassified'.

Among the countries assessed, 21 (Belgium, Czechia, Croatia, Denmark, Finland, Germany, Greece, Hungary, Iceland, Italy, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Romania, Serbia, Slovenia, Sweden and Switzerland) were profiled as demonstrating a depth-oriented approach. These countries focus on improving the quality of open data rather than stimulating a wide variety of open data. An additional 11 countries (Albania, Austria, Cyprus, Estonia, France, Ireland, Poland, Portugal, Slovakia, Spain and Ukraine) were found to exhibit a balanced approach, showing quality approaches that cover both depth and diversity of open data. Bulgaria was the only country profiled with a diversity-oriented approach, meaning it puts greater efforts on ensuring pluriform open data compared to the richness of datasets, while Bosnia and Herzegovina was the sole country categorised as unclassified, as it demonstrates neither depth- nor diversity-related orientation traits.

⁽²¹⁾ See Annex for the full list of questions and their relevant ID.

Depth-orientated approach (Germany)



Diversity-oriented approach (Bulgaria)

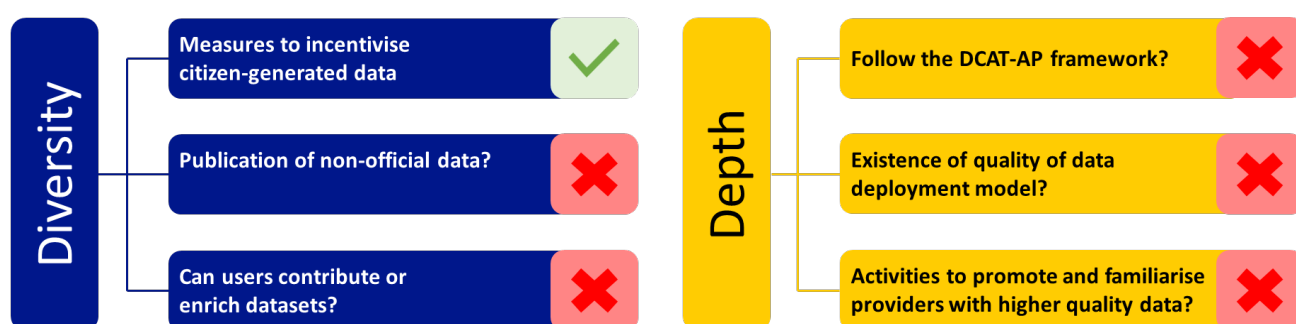


Figure 11. Example of the open data supply strategy country profiles and their criteria

Domain of impact

The **domain of impact** parameter describes the breadth of open data impact across four domains: governmental, social, environmental and economic. This is based on five standardised questions per domain in the open data maturity questionnaire, focusing on governmental (I12–I16), social (I17–I21), environmental (I22–I26) and economic (I27–I31) open data impact⁽²²⁾. These questions assess the availability of impact data, contributions to societal goals (e.g. biodiversity, public service delivery, social inclusion), practical and strategic impacts (e.g. on cities, public health, entrepreneurship) and influence on decision-making and productivity. A country is considered ‘active’ in a domain if it answers ‘yes’ to at least three out of five questions. Based on the number of active domains, countries are categorised as follows: ‘all-rounders’ (active in all four domains), ‘partial all-rounders’ (active in three), ‘specialists’ (active in one or two, with domains specified) and ‘non-engaged’ (active in none). In total, 18 countries (Austria, Cyprus, Czechia, Denmark, Estonia, France, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Serbia, Slovakia, Spain, Sweden, Switzerland, Ukraine) demonstrated an all-rounder approach, 9 (Belgium, Bulgaria, Germany, Finland, Hungary, Luxembourg, Latvia, Norway, Slovenia) reported a partial all-rounder approach, 2 (Croatia, Iceland) demonstrated a specialised approach and 5 (Albania, Bosnia and Herzegovina, Greece, Malta, Romania) demonstrated a non-engaged approach.

Consultations with Member States underscored the need for greater clarity and specificity in defining what ‘impact’ entails, as the current formulation was perceived as too abstract. Several participants emphasised that the definition should be more nuanced, capturing dimensions such as the duration of impact (e.g. short-term versus long-term effects). To address this, the definition of ‘impact’ in the questionnaire could be expanded to explicitly include dimensions such as duration and scope.

⁽²²⁾ See the Annex for the full list of questions and their relevant ID.

Impact all-rounder profile (Slovakia)

	Domains of impact			
	Governmental	Social	Environmental	Economic
Availability of data on the impact of open data across key domains	✓	✓	✓	✓
Contribution of open data to biodiversity protection, public service delivery, social inclusion, and employment	✓	✓	✓	✓
Practical impact of open data on improving cities, public administration, and the adoption of new technologies	✓	✓	✓	✓
Strategic impact of open data on climate action, policy-making, public health, and entrepreneurship	✓	✓	✓	✓
Influence of open data on energy transition, decision-making quality, education and data literacy, and productivity	✓	✓	✓	✓

Figure 12. Example of the domain of impact country profile and its criteria

Portal technical foundations

The **portal technical foundations** parameter describes the technical setup of a country's national open data portal, with a specific focus on the underlying technology stack. This parameter is derived from question PT2 ⁽²³⁾ in the portal dimension of the open data maturity questionnaire, which asks: 'What is the technology stack of your portal?'. Countries are profiled based on whether their portal is built on a standard platform (e.g. CKAN, uData or Piveau), which are widely adopted open-source solutions commonly used for open data portals, or on a custom platform, which includes bespoke or proprietary systems tailored to national or organisational needs. Although countries could be categorised based on the specific platform they report, for the sake of comparability they are grouped into these two broader categories. 22 countries (Austria, Bosnia and Herzegovina, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Luxembourg, Netherlands, Portugal, Romania, Serbia, Slovenia, Spain, Switzerland, Ukraine) reported utilising a standard platform, while 12 (Albania, Belgium, Bulgaria, Cyprus, Czechia, Estonia, Lithuania, Malta, Norway, Poland, Slovakia, Sweden) reported a custom platform. It is important to note that the platform technologies referenced may evolve or become obsolete over time. Considering the 'live' nature of this framework, this parameter will be updated routinely to reflect newer technologies, ensuring its profiling is relevant and up-to-date.

Funding

The **funding** parameter reflects the financial commitment and sustainability of a country's investment in open data, specifically focusing on the annual budget allocated to the national portal. Due to the limited availability of open and verifiable data on broader open data investments, often considered back-end or confidential, this parameter relies on question R6 from the open data maturity questionnaire, which asks: 'What is the annual budget of the national portal?'. To categorise countries, a percentile-based method is used instead of averages, which can be skewed by extreme values. This approach allows for a more accurate understanding of how countries compare relative to one another. Based on this method, countries are grouped into three categories: low (budgets between EUR 0 and EUR 200 000), medium (EUR 200 001 to EUR 600 000) and high (above EUR 600 001). 6 countries (Denmark, Estonia, France, Germany, Norway, Poland) reported relatively high funding, 7 (Austria, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain) reported a relatively medium budget, while 21 (Albania, Belgium, Bosnia and

⁽²³⁾ See Annex for the full list of questions and their relevant ID.

Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Finland, Greece, Hungary, Iceland, Latvia, Lithuania, Malta, Romania, Serbia, Slovakia, Slovenia, Sweden, Switzerland, Ukraine) reported relatively low funding.

When consulting Member States regarding this funding parameter, the need to broaden the scope of budget analysis beyond the national level and the open data portal was highlighted. Namely it was expressed that it would be more accurate to include regional and local funding, such as municipal open data budgets, in order to capture the full picture of financial commitment. Participants also underlined that examining **how** budgets are allocated – whether toward technical infrastructure, capacity building or promoting data reuse – can reveal important insights into a country's open data priorities. For example, one country noted that its national portal budget is primarily directed toward technical underpinnings, with less emphasis on the promotion of data reuse.

These insights suggest that the funding parameter requires greater nuance in both scope and structure. Rather than relying solely on a single annual portal budget figure, it would be beneficial to change the scope of question R6 to capture a broader set of variables. Specifically, this may involve extending the temporal scope of budget analysis. Since many Member States operate on multi-year financial cycles, often undertaking major portal upgrades every three to five years and allocating the remaining funds to routine maintenance, it is more accurate to assess the average open data budget over the past five years rather than relying on a single-year figure. In addition, this may involve broadening the definition of budget to include both national and regional allocations, disaggregated across key expenditure categories such as technical infrastructure, capacity-building and promotional or engagement activities.

Transposition of the Open Data Directive

The **transposition of the Open Data Directive** parameter describes **how** countries have adopted or implemented the Open Data Directive within their national legal frameworks. Unlike information on the transposition of the Public Sector Information Directive, detailed and publicly available information on how countries have transposed the Open Data Directive is more limited⁽²⁴⁾. Therefore, at the moment the most accurate and accessible source for this parameter is question P1 from the open data maturity questionnaire, which asks: 'Is there a national open data policy in your country and, if your country is an EU Member State, does this include a national legislation for the transposition of the Open Data Directive?'

The responses to this question provided valuable insights into the legal instruments used for transposition, such as dedicated laws, amendments to existing legislation or broader digital laws, along with supporting strategies, roadmaps and the institutional arrangements for coordination and enforcement. This comparative analysis enabled grouping countries based on shared structural and procedural characteristics in their approach to transposing and implementing the directive. Nearly all Member States have already implemented the directive or plan to do so within the next two years, so the emphasis here is not on whether transposition has occurred, but rather the way in which it has been achieved. While non-EU countries are not formally required to transpose EU legislation, they are included in this analysis as active participants in the open data maturity study⁽²⁵⁾. In addition, their inclusion remains valuable for peer-to-peer comparison as many of these non-EU countries have voluntarily aligned with the directive. In fact, only Norway and Bosnia and Herzegovina reported that their transposition efforts are still in progress.

Countries are categorised into three distinct transposition types: amending existing laws, standalone legislation and a multi-instrument approach. 15 countries (Belgium, Croatia, Czechia, Denmark, Estonia, France, Greece, Iceland, Italy, Malta, Netherlands, Serbia, Slovakia, Spain, Switzerland) have amended the directive into existing law, meaning that they have integrated it into pre-existing frameworks without introducing a separate dedicated act. Meanwhile,

⁽²⁴⁾ European Commission, 'Public Sector Information Directive – implementation', European Commission website, 1 July 2025, <https://digital-strategy.ec.europa.eu/en/policies/public-sector-information-directive>.

⁽²⁵⁾ EEA members and EU candidate countries are generally expected to align with the Open Data Directive, even though they face no legal obligation or sanctions for non-compliance.

10 countries (Albania, Austria, Cyprus, Germany, Ireland, Luxembourg, Poland, Portugal, Romania, Sweden) have standalone legislation which is explicitly dedicated to open data and public sector information reuse. Lastly, 7 countries (Bulgaria, Finland, Hungary, Latvia, Lithuania, Slovenia and Ukraine) report a multi-instrument approach, meaning the directive is transposed using a coordinated set of legal and policy tools (e.g. amendments to several laws, additional decrees or ordinances, strategic or policy documents that complement legal measures).

Overall open data descriptive profiles?

Following the classification of countries across each parameter, a comprehensive overall profile was considered, an encompassing profile that considers all parameters. It would be valuable to know whether several countries have similar open data descriptive profiles, analyse how these shared profiles relate to open data maturity scores and make comparisons with countries that have a different open data approach. However, among the 34 countries under analysis in this attempt, 33 unique profiles emerged. This high level of uniqueness posed a challenge: nearly every country had a distinct profile, even when simplifying the combinations of parameters. Hence, peer-to-peer learning can take place using the separate parameters instead of using an overarching profile. In addition, the unique profiles, even though less useful for direct comparison, remain valuable in providing detailed descriptions of each country's approach. Looking ahead, these unique profiles could also be used as content for country profile pages on the mini site of the European Data Portal. Moreover, future iterations of this analysis may revisit the concept of overarching profiles to assess whether they can be refined in ways that enhance their comparative utility and practical relevance for participating countries. In any case, the open data maturity scores and country-specific profiles can be related to countries grouped in macro country clusters, discussed in the next section.

3.3. Macro country clusters

3.3.1. Approach

In order to facilitate peer-to-peer learning among countries, comparison should ideally take place between countries that share as many similarities as possible. The previous chapter analysed open data approaches and related descriptive profiles. This showed how countries organise and improve open data practices. By looking into the background characteristics of countries and clustering them, it becomes clear whether similar countries perform similarly or whether some countries outperform others, potentially because they use different open data approaches.

Taking inspiration from the studies discussed in Chapter 3.1, a set of macro context characteristics has been analysed to serve this purpose. Factors include **economic, social and cultural, geographical, political and digital characteristics**. The more similar these contexts, the more effective the comparison of countries is expected to be.

3.3.2. Findings

Economic characteristics

Economic characteristics are commonly used to find comparable countries. The Eurostat country factsheets summarise key indicators for all Member States, including indicators that relate to their **economy** ⁽²⁶⁾. Key examples of economic characteristics are: GDP per capita, unemployment rates, inflation rates and government debt as a percentage of the GDP. Other economic indicators were considered of less relevance in light of this open data study, including country statistics on the gender pay gap, minimum wage, people at risk of poverty or social exclusion, etc.

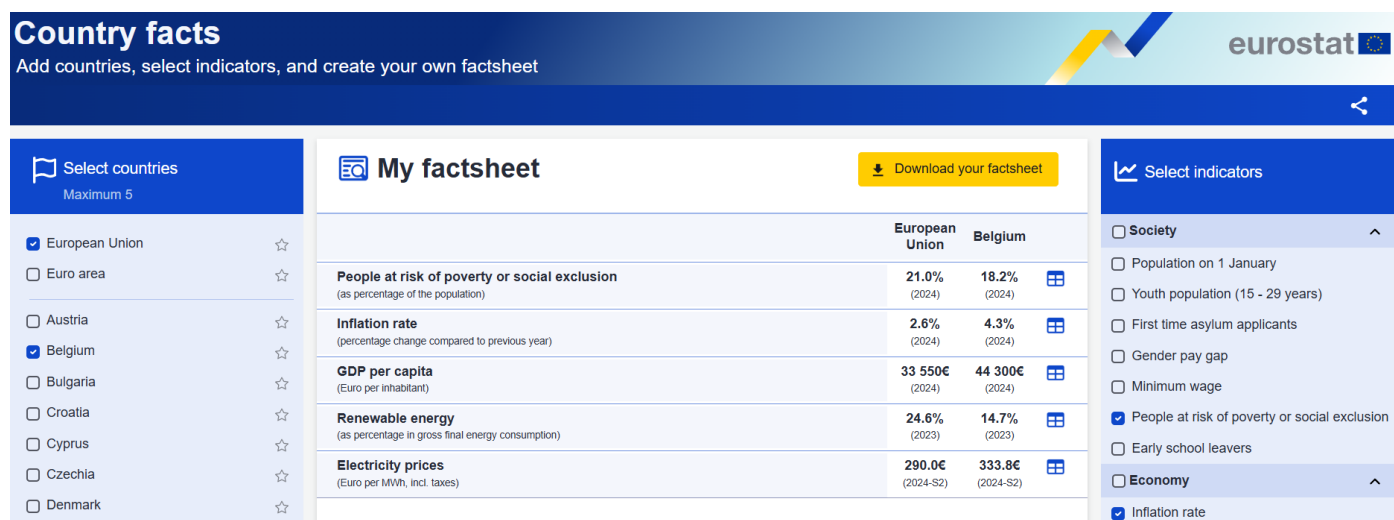


Figure 13. Illustration of Eurostat country factsheets

Source: Eurostat, 'Country facts', <https://ec.europa.eu/eurostat/cache/countryfacts/>.

Social and cultural characteristics

Countries can also be clustered on the basis of **social and cultural** characteristics. The EU published official country profiles on its website, listing several indicators ⁽²⁷⁾. A common indicator is the population size of a country ⁽²⁸⁾. Demographics are considered to be a defining element too (e.g. the ratio between youth and elderly) ⁽²⁹⁾. The same

⁽²⁶⁾ Eurostat, 'Country facts', <https://ec.europa.eu/eurostat/cache/countryfacts/>.

⁽²⁷⁾ European Union: Directorate-General for Communication, 'EU countries', European Union: Directorate-General for Communication website, https://european-union.europa.eu/principles-countries-history/eu-countries_en.

⁽²⁸⁾ Eurostat, 'Population on 1 January', 15 September 2025, <https://doi.org/10.2908/TPS00001>.

⁽²⁹⁾ Eurostat, 'Old-age-dependency ratio', 23 October 2025, <https://doi.org/10.2908/TPS00198>.

goes for education levels ⁽³⁰⁾. The EU has 24 official languages, besides minority languages, dialects, sign languages, etc. Eight of these languages are official national languages in multiple Member States ⁽³¹⁾. These may shape linguistic regions: Dutch (Belgium, Netherlands), English (Ireland, Malta), Finnish (Finland, Sweden), French (Belgium, France, Luxembourg), German (Belgium, Germany, Luxembourg, Austria), Greek (Greece, Cyprus), Slovak (Czechia, Hungary, Slovakia) and Swedish (Finland, Sweden). More specific and less relevant characteristics include life expectancy, poverty rate, the Gini coefficient and composites like the Human Development Index from the United Nations ⁽³²⁾.

Geographical characteristics

Countries that are **geographically** close to each other may be clustered together. The EuroVoc geographic regions defines the EU-27 countries into four European regions: central and eastern Europe (Bulgaria, Czechia, Croatia, Hungary, Poland, Romania, Slovenia, Slovakia), northern Europe (Denmark, Estonia, Latvia, Lithuania, Finland, Sweden), southern Europe (Greece, Spain, Italy, Cyprus, Malta, Portugal) and western Europe (Belgium, Germany, Ireland, France, Luxembourg, Netherlands, Austria) ⁽³³⁾. Although the geographical size of countries is not included in this analysis, urbanisation levels have been included as this often relates to other key macro indicators ⁽³⁴⁾.

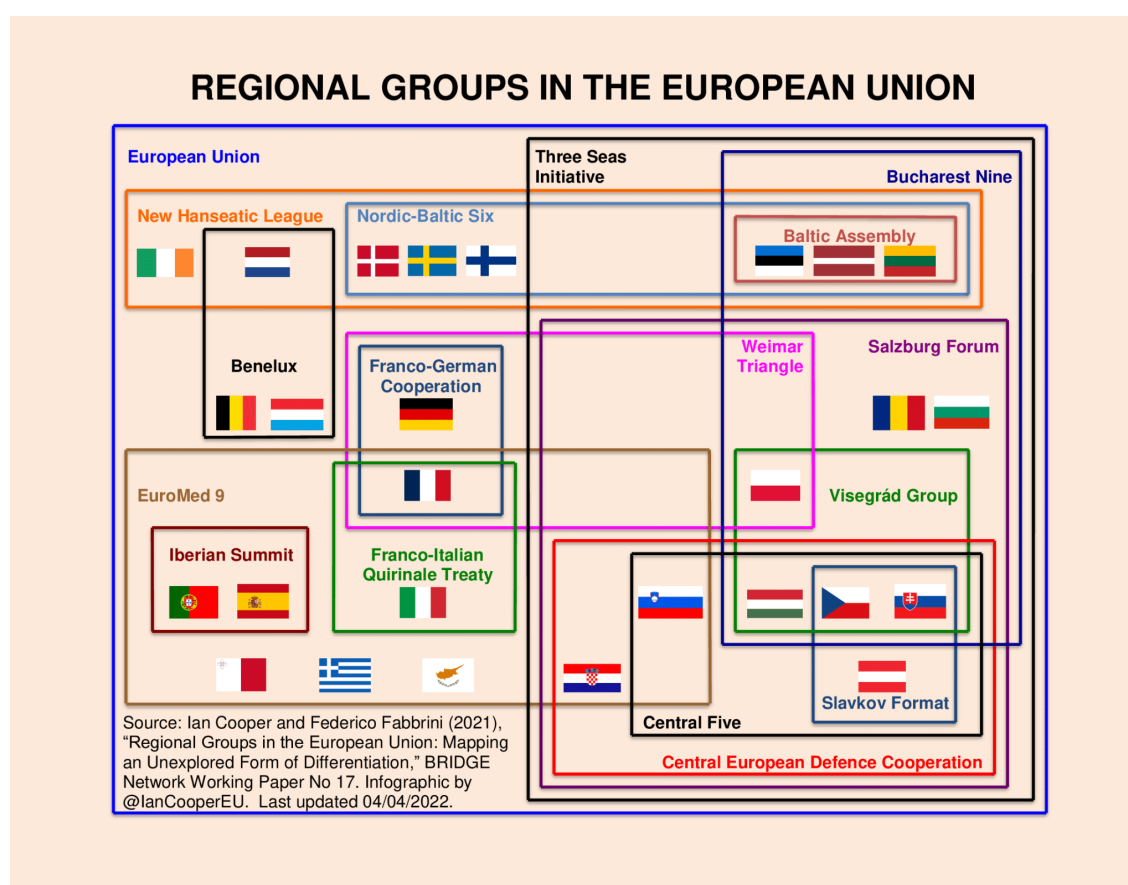


Figure 14. Example of political alliances in the EU

Source: The Rise of Regional Groups in the EU, <https://bridgenetwork.eu/rise-regional-groups-eu/>.

⁽³⁰⁾ Eurostat, 'Population in private households by educational attainment level (%)', 11 September 2025, https://doi.org/10.2908/EDAT_LFS_9903.

⁽³¹⁾ European Union: Directorate-General for Communication, 'Europeans and their languages', European Union: Directorate-General for Communication, website, May 2024, <https://europa.eu/eurobarometer/surveys/detail/2979>.

⁽³²⁾ United Nations Development Programme, 'Human Development Index (HDI)', 2025, <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>.

⁽³³⁾ EUR-Lex, 'Browse by EuroVoc', EUR-Lex website, https://eur-lex.europa.eu/browse/eurovoc.html?params=72#arrow_7206.

⁽³⁴⁾ Eurostat, 'Distribution of population by degree of urbanisation, dwelling type and income group', 24 July 2025, https://doi.org/10.2908/ILC_LVHO01.

Political characteristics

The Member States have different types of **political systems** with different types of government and different types of parliaments. Forms of government range from parliamentary, semi-presidential, presidential, with federal, devolved and unitary structures to republican states and constitutional (popular) monarchies ⁽³⁵⁾. These systems play an important role in how democratic power and roles are allocated. Accordingly, the (de)centralisation levels of Member States differ. For instance, Ireland measures as the most centralised Member State for fiscal, administrative and political decision making, while Germany the most decentralised ⁽³⁶⁾. Relevant to open data and transparency, the World Bank good governance indicators complement these macro characteristics, related to voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption ⁽³⁷⁾. Furthermore, Member States may have different political memberships. Apart from the Euro and Schengen areas, the duration of EU membership is considered to play a role in the international cooperation among different Member States. Other (in)formal regional groups are considered to be less influential, such as Benelux (Belgium, Luxembourg, Netherlands), the Iberian summits (Spain, Portugal), the Salzburg Forum (Bulgaria, Czechia, Croatia, Hungary, Austria, Poland, Romania, Slovenia, Slovakia) and the New Hanseatic League (Denmark, Estonia, Ireland, Latvia, Lithuania, Netherlands, Finland, Sweden) ⁽³⁸⁾.

Data and digital characteristics

The European Commission's Digital Decade policy programme sets the digital priorities until 2030. It is accompanied by a set of Digital Decade key performance indicators related to four cardinal points: digital infrastructure, digital transformation of business, digital skills and digital public services ⁽³⁹⁾. Some of these **data and digital context characteristics** have been included in the clustering model, in light of countries' open data maturity. From the digital infrastructure cardinal point, overall 5G coverage has been taken into account. From the digital transformation of business cardinal point, cloud take-up, data analytics take-up and AI take-up are factored in, which all can be considered enablers of open data or technological developments that benefit from open data. From the digital skills area, basic digital skills and the number of ICT specialists may influence open data maturity scores ⁽⁴⁰⁾. Other contextual factors deemed relevant, and for instance included in the interoperable Europe initiative and former National Interoperability Framework Observatory, are data and information skills that may relate to data reuse opportunities and research and development expenditure from a wider innovation point of view ⁽⁴¹⁾.

3.3.3. Mapping the EU-27 along macro country clusters

The previous chapter analysed open data approaches and related profiles. This showed how countries organise and improve open data practices. By looking into the background characteristics of countries it becomes clear whether similar countries part of a cluster perform similarly or whether some countries outperform others, potentially because they use different approaches.

⁽³⁵⁾ European Committee of the Regions, 'Division of Powers', European Committee of the Regions website, <https://portal.cor.europa.eu/divisionpowers/Pages/default.aspx>.

⁽³⁶⁾ European Committee of the Regions, 'Division of Powers', European Committee of the Regions website, <https://portal.cor.europa.eu/divisionpowers/Pages/default.aspx>.

⁽³⁷⁾ World Bank Group, 'Worldwide Governance Indicators', 2024, <https://www.worldbank.org/en/publication/worldwide-governance-indicators>.

⁽³⁸⁾ Brexit Research and Interchange on Differentiated Governance in Europe; Cooper. I., 'The Rise of Regional Groups in the EU', Brexit Research and Interchange on Differentiated Governance in Europe website, 2023, <https://bridgenetwork.eu/rise-regional-groups-eu/>.

⁽³⁹⁾ European Union: Directorate-General for Communications, Networks, Content and Technology, '2025 State of the Digital Decade package', European Union: Directorate-General for Communications, Networks, Content and Technology website, 16 June 2025, <https://digital-strategy.ec.europa.eu/en/policies/2025-state-digital-decade-package>.

⁽⁴⁰⁾ Eurostat, 'Skills for the digital age', Eurostat website, April 2024, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Skills_for_the_digital_age.

⁽⁴¹⁾ European Commission: Interoperable Europe portal, 'Country Knowledge', European Commission: Interoperable Europe portal website, <https://interoperable-europe.ec.europa.eu/collection/portal/country-knowledge>.

To find groups of countries with similar macro characteristics, a standard **cluster analysis** was conducted, using K-means analysis in KNIME, an open-source data science platform used in several EU projects and initiatives ⁽⁴²⁾. A deliberate split into five clusters was made to ensure each cluster is both meaningful and includes multiple countries per cluster. After collecting all data for all selected context variables, normalisation was applied to synchronise variables using different scales (e.g. some metrics run from 0 % to 100 %, while others from 0 to 1). Less relevant nominal variables, such as linguistic regions, were left out of the statistical analysis. However, these softer characteristics could still be included in country profile pages, depending on the individual comparison preferences of policymakers, journalists, researchers, citizens and others interested in open data maturity.

After running the analysis, Hungary, Romania and Croatia were grouped to the closest statistical cluster, although these countries initially did not belong to clusters containing at least three countries. The analysis resulted in the following clusters, based on a set of 19 macro context characteristics.

1. **Southern and western European belt** (Belgium, Germany, Greece, Spain, France, Italy, Portugal). These countries are relatively large in terms of population, with a relatively high number of elderly people compared to young people, with average education levels and average shares of people living in urban areas. These countries show average economic contexts and welfare. This group contains countries that have been members of the EU for a relatively long time. Political decision-making is moderately decentralised, while governance standards are in line with the EU average. Countries show average data- and digital-related backgrounds and infrastructures.
2. **Central and eastern Europe** (Bulgaria, Czechia, Croatia, Hungary, Austria, Poland, Romania, Slovenia, Slovakia). These countries have medium to large populations with demographical compositions similar to the EU average. Relatively many citizens in these countries attained primary- and secondary-level education and relatively many live in rural areas. The economic context in these countries can be described as below average. Several countries have ‘young’ EU memberships. Political decision-making is as (de)centralised as the EU at large, while governance standards are below average. The data and digital infrastructure of this cluster is less mature than in other clusters.
3. **NorNeLux** (Denmark, Luxembourg, Netherlands, Finland, Sweden). These countries are medium-sized in terms of population showing demographical compositions similar to the EU trend, yet with many highly educated people who live in environments that match the EU average in terms of urbanisation. The economic prosperity of the Nordic countries, Netherlands and Luxembourg is above average. These countries have been part of the EU for a relatively long time and share relatively decentralised political decision-making, with high governance standards. The wider data and digital capacities of these countries are highly matured.
4. **Baltics** (Estonia, Latvia, Lithuania). These countries have relatively small populations with similar demographic structures and educational levels as found elsewhere in the EU. Urbanisation levels are above the EU average. The economic context and climate are slightly less optimal than elsewhere in the EU. Furthermore, the Baltic states have joined the EU more recently than countries in some other clusters. Political decision-making processes are as (de)centralised as in the EU at large, with average governance standards. The data and digital infrastructures are on par with the rest of the EU too.
5. **Island-based nations** (Ireland, Cyprus, Malta). These countries have fairly small and young populations, with a relatively highly educated workforce. Comparatively, many people live in the urban parts of the islands where these nations are situated. Economic variables sit at around the EU average. Along with being EU members for a medium to long time, these countries share highly centralised levels of political decision-making

⁽⁴²⁾ European Commission, ‘Big Data Test Infrastructure – Resources’, European Commission website, 21 March 2025, <https://digital-strategy.ec.europa.eu/en/policies/bdti-resources>.

and average governance standards. The data and digital environments of countries in this cluster can be characterised as (above) average.

In terms of open data maturity, some groups of countries perform (slightly) better than others. However, these differences are not substantial from a statistical point of view, based on one-way analysis of variance and Tukey's honestly significant difference post-hoc statistical test. In fact, the open data maturity levels of Clusters 1, 2 and 3 centre closely around the EU-27 average of 84 %, with respective scores of 83 %, 84 % and 82 %. Even though Cluster 4 averages 93 % and Cluster 5 performs below average with 79 %, differences are not statistically significant compared to each other. In other words, the **five country clusters perform relatively alike**.

Moreover, different performances also occur within each of the clusters. Some of the **country performances within a specific cluster do show statistical gaps**, meaning a country outperforms or underperforms one or several peer countries. For example, in the first group of countries, France outperforms most of its cluster peers, while Greece underperforms relative to countries like Belgium, Germany, Spain, Italy and Portugal. In its country cluster, Poland outperforms Bulgaria and Croatia, while the open data maturity of countries in this cluster is fairly comparable, including those of Czechia, Hungary, Austria, Romania, Slovenia and Slovakia. Furthermore, Denmark outperforms most peers, while Luxembourg, Netherlands, Finland and Sweden perform much alike. In the last cluster, it becomes visible that Malta lags behind its peers Ireland and Cyprus, even though these countries have greater similarities looking at their macro contextual characteristics.

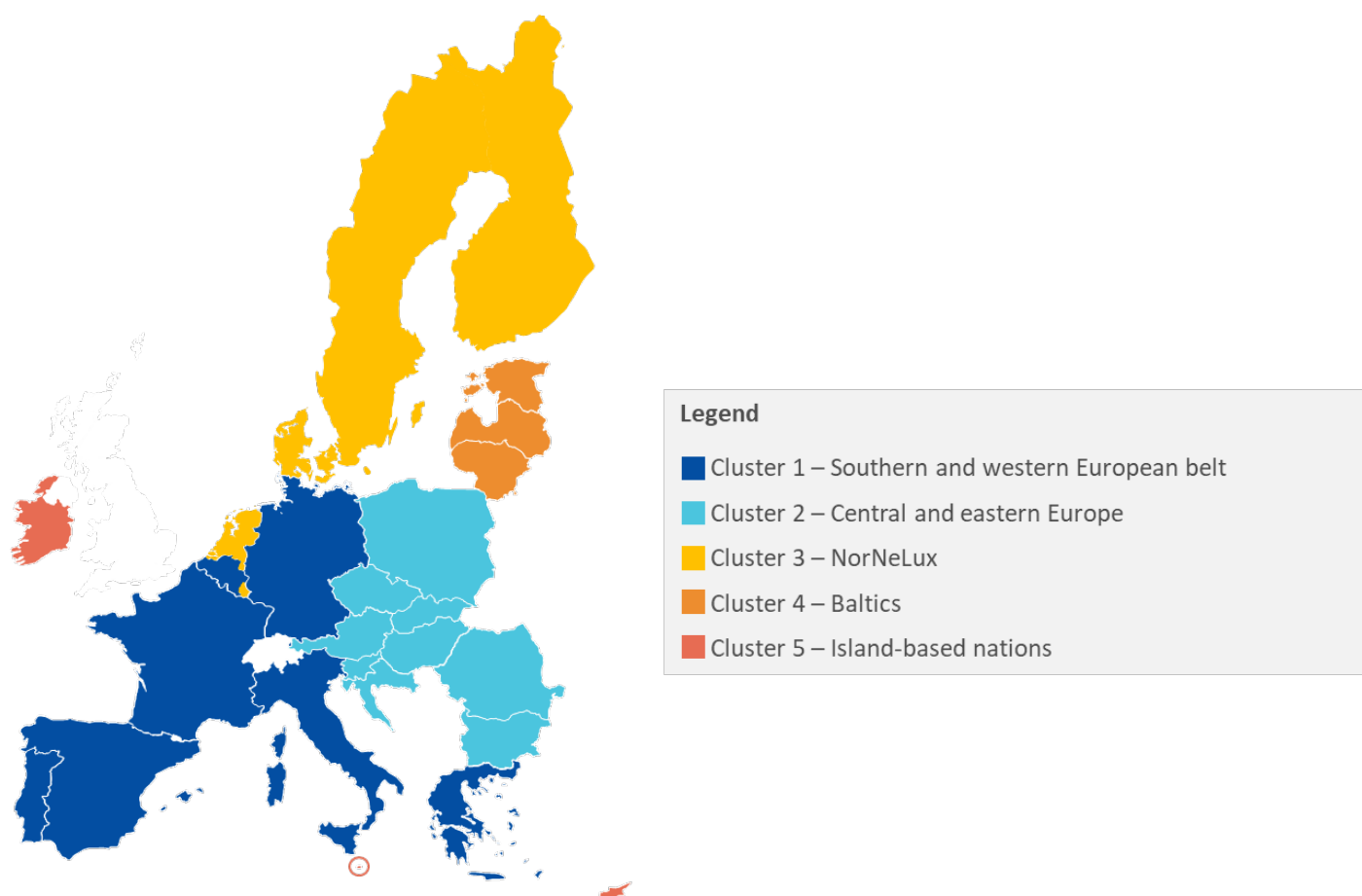


Figure 15. Macro EU country clusters

3.3.4. Overview of macro context characteristics

The following statistical variables were used in the clustering analysis (leaving out less relevant nominal variables*). The full dataset is provided in a separate attachment.

Country context characteristics	Description	Measurement frequency	Reference year	Coverage	Source
Economic					
GDP per capita (in purchasing power standards)	The GDP per capita in purchasing power standards shows the economic output per person adjusted for differences in price levels.	Annually	2024	EU-27+	Eurostat
Unemployment rate	Share of the labour force without work.	Annually	2024	EU-27+	Eurostat
Inflation rate	The annual percentage change in the price index.	Annually	2024	EU-27+	Eurostat
Government debt as a percentage of the GDP	Economic ratio between a country's total government debt and its GDP.	Annually	2024	EU-27	Eurostat
Social and cultural					
Population size	The total number of people residing in a country.	Annually	2025	EU-27+	Eurostat
Demographic dependency ratio	Ratio between the number of persons aged 65 and over and the number of persons aged between 15 and 64.	Annually	2024	EU-27+	Eurostat
Linguistic regions*	Countries with the same official language(s).	Annually	2024	EU-27	Eurostat
Education level	Share of people with tertiary educational attainment (International Standard Classification of Education levels 5–8).	Annually	2024	EU-27+	Eurostat
Geographical					
Geographical regions*	EuroVoc geographic regions: northern Europe, western Europe, central and eastern Europe and southern Europe.	Annually	2025	EU-27+	Publications Office
Neighbouring countries*	EU countries that share a border.	Annually	2025	EU-27+	Publications Office
Urbanisation level	Share of the population living in cities.	Annually	2024	EU-27	Eurostat
Political					
Political system*	Form of government being a presidential republic, semi-presidential republic, parliamentary republic or parliamentary constitutional monarchy.	One-off	2020	EU-27	European Committee of the Regions
Degree of self-governance*	Allocation of competence, varying from a unitary state, devolved state, federacy or federation.	One-off	2020	EU-27	European Committee of the Regions
(De)centralisation	Degree of political, administrative and fiscal decision-making being centralised or decentralised.	One-off	2020	EU-27	European Committee of the Regions
EU membership (duration)	Duration of EU membership (since European Coal and Steel Community).	Annually	2025	EU-27	Commission Services
Good governance (composite)	Levels of voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption.	Annually	2024	EU-27+	World Bank
Data and digital characteristics					
Basic digital skills	Individuals with basic or above basic overall digital skills.	Biennially	2023	EU-27+	Eurostat
Data and information skills	Individuals check the truthfulness of the information or content found on the internet.	Biennially	2023	EU-27+	Eurostat
ICT specialists	Employed ICT specialists as a percentage of the total employment.	Annually	2024	EU-27+	Eurostat
Cloud uptake	The share of enterprises that buy cloud computing services used over the internet.	Annually	2023	EU-27+	Eurostat
AI uptake	The share of enterprises that use at least one type of AI technology.	Annually	2024	EU-27+	Eurostat
Data analytics uptake	The share of enterprises with data analytics performed by the enterprise's own employees or by an external provider.	Annually	2023	EU-27+	Eurostat
Research and development expenditure	Research and development expenditure as a percentage of the GDP.	Annually	2023	EU-27+	Eurostat
Overall 5G coverage	Broadband internet coverage with 5G technology.	Annually	2024	EU-27	Eurostat

Table 1. Overview of relevant secondary statistical data sources for the EU-27

4. Conclusions and next steps

4.1. Implementation considerations for the 2026 open data maturity assessment

In essence, the **country profiling** exercise repurposes the open data maturity assessment from a normative evaluation tool into a descriptive analytical framework. Using an inductive, two-phase approach, questions from the open data maturity questionnaire were ungrouped and analysed to identify clusters of shared behaviours, which were refined into six descriptive parameters: governance approach, open data quality strategy, domain of impact, funding, portal technical foundations and transposition of the Open Data Directive. These parameters were then operationalised using a mix of original questionnaire items and select external datasets, enabling country profiles that reveal patterns in open data practices.

This framework is designed to remain dynamic and adaptable, evolving alongside technological and policy developments. In fact, insights from country consultations and reflections by the research team highlighted opportunities to refine data sources for parameters in future iterations of the assessment. Further exploring and targeting these areas could be worthwhile, potentially involving representatives from the participating countries in the open data maturity assessment.

- (1) The existing question from the open data maturity questionnaire about a country's **governance model** was found to be unclear, with countries suggesting that the question and the categories used (e.g. top-down, hybrid, bottom-up) could be clarified further. In clarifying the scope of what we mean by 'governance' and the three categories measured, various governance roles and responsibilities could be better reflected. For instance, future iterations could look more into the relationship between the entity responsible for making open data policies versus the entity responsible for maintaining the national open data portal and its links to regional and local open portals, and the relationship between government and non-government stakeholders in making and implementing open data policies.
- (2) A need for clearer definitions is noted for the **domains of impact** parameter. This is because currently the term 'impact', as used in the impact dimension of the questionnaire, is seen as too abstract. This is especially important since the open data maturity assessment relies on self-declared survey data from government representatives.
- (3) Regarding the **funding** parameter, it is noted that the current focus on national portal funding is too narrow; a broader question could be added to capture all sources of funding supporting open data activities across different levels of government, different types of spending and long-term budgeting.
- (4) For the **transposition of the Open Data Directive**, a predefined categorisation, potentially based on the typology developed in this study, could be introduced to allow countries to self-identify their transposition approach. This would enhance the accuracy and consistency of the data collected.
- (5) Lastly, for the **portal technical foundations** parameter, Member States note that additional questions could help better capture the diversity and complexity of national portal infrastructures. While the portal section of the open data maturity questionnaire already contains a wealth of relevant questions, there is a need to further distinguish which of these are most critical for profiling purposes.

These insights point to the potential for a more nuanced and comprehensive evidence base in future iterations, improving both the accuracy and comparability of country profiles. These country profiles can be most effectively leveraged through the mini site, an interactive and accessible outlet designed for country-level exploration. The mini site could feature the ability to view each country's individual classification under each of the six descriptive parameters and sort countries accordingly, like sorting open data maturity scores by country name. Each profile would be accompanied by clear labels, definitions and the underlying evidence base, including the specific open data

maturity questionnaire questions and any supplementary data sources used. This transparency would help countries better understand how their profile was constructed and why others are in the same or a different profile. By visualising this information interactively, the mini site would enable countries to identify relevant peers and simultaneously contextualise their performance across the four dimensions of the open data maturity study.

Peer-to-peer learning in action

How open data descriptive profiles and macro country clusters facilitate stronger open data in practice

In the current open data maturity assessment, learning mostly takes place by countries looking at peers that are perceived to have better overall open data maturity, or excel in specific open data areas. However, by taking into account the identified open data descriptive profiles and macro country clusters it is easier for countries to find peers more accurately using facts and share best practices regarding specific improvement areas more effectively.

For example, whenever a policymaker from Germany wants to improve the German overall maturity score, they can use the **macro country clusters** to find most comparable peer countries. Looking at Germany's macro background characteristics, France is considered one of its peers. However, the [2024 overall maturity scores](#) of both countries differ considerably. France is among the trendsetters with an overall open data maturity score of 99.6. Germany is among the followers with an overall open data maturity of 76.4. The assessment shows that France is particularly ahead when it comes to the portal and impact dimensions.

Now, by looking at the **open data maturity profiles** of Germany and France, it turns out both countries have hybrid governance models, high funding levels and standardised portal technical foundations. However, Germany has dedicated and standalone national open data legislation, whereas in France the transposition of the Open Data Directive is based on amending and integrating open data arrangements into existing law. Moreover, Germany's depth-orientated open data quality strategy prioritises richness of data over publishing more diverse types of open data, while France has a balanced open data quality strategy. Germany also has a slightly bigger focus on specific impact domains. France's approach prioritises all-round impact.

Since the peer countries Germany and France have different open data maturity scores and unique open data profiles, sharing good practices and recommended examples is highly valuable, such as [France's way to measure open data impact](#). Exchanges and developing (joint) next steps could take place during European Data Portal workshops, presentations by the Commission's public sector information expert group or bilaterally, for example.

In sum, the macro country clusters and open data descriptive profiles help countries to find peers with similar backgrounds, and accommodate learning by looking at the descriptive profiles underlying performance.

With regards to the **macro country clustering**, it should be noted that the identified peer groups could be included in the 2026 edition of the open data maturity report and mini site. For the mini site specifically, clusters could be used to group countries to present their scores, similar to grouping scores by Member States and non-EU countries. From a statistical point of view, countries in the southern and western European belt, central and eastern Europe, NorNeLux, the Baltics and island-based nations are most similar. They share most economic, social and cultural, geographical, political and digital country characteristics. Comparing the open data maturity of countries within those clusters offers the fairest comparisons. At the same time, initial responses from Member States indicate that the statistical clusters are relevant for comparison, but cross-country learning is much broader. Some countries may prefer to simply look at the country size, neighbouring countries or government structure alone to compare their results with other countries. Moreover, regardless of comparability it is important for countries to compare their performance with top-performing

countries and learn from their best practices. For the mini website and country pages this means that filtering and comparison options should allow for a certain degree of flexibility.

Overall, both the open data profiles and macro country clusters can help to promote peer-to-peer learning and inform actionable policy directions, beyond countries' open data maturity performance. It is recommended to keep the existing performance-based groups of beginners, followers, fast-trackers and trendsetters, and to combine these with the specific open data profiles and macro country clusters to put these score-based performances into perspective. This will also help to set **more meaningful and tailored policy recommendations**, sparking collaboration and accelerating open data maturity progress in Europe.

4.2. Feasibility and recommendations for extending the framework to non-EU countries

Considering the ambition to include all countries participating in the open data maturity benchmarking, this study extended the **descriptive profiling** exercise beyond the EU-27. This allowed us to explore how non-EU-27 countries align with the developed framework, offering early insights into their potential classification. These findings demonstrated that the profiling approach is flexible enough to accommodate a broader set of national contexts, while also highlighting areas where the framework could be refined to ensure continued relevance and inclusivity. Looking ahead, expanding the profiling to all participating countries presents an opportunity to capture greater nuance in national approaches, while still enabling meaningful clustering and comparison.

Extending the **macro country clustering** framework to non-EU countries is less realistic than for the open data profiles. More than half of the 19 macro statistical sources cover the non-EU countries that participate in the open data maturity assessment. However, it should be noted that data is more widely available for the three EFTA countries Iceland, Norway and Switzerland, compared to the four EU candidate countries Albania, Bosnia and Herzegovina, Serbia and Ukraine. Also, in several cases the reference years for the data of the non-EU countries indicate less accurate and recent data. Although a partial country clustering is expected to be possible, the missing values for some variables may hinder a full clustering analysis, lowering the quality of the clusters to which these non-EU countries would belong. Should the clustering rely on country size, neighbouring countries or government structure alone, the grouping is expected to be possible and stable over time.

5. Annex

5.1. Open data maturity questionnaire

5.1.1. Full list of policy dimension questions

ID	Question
P1	Is there a national open data policy in your country and, if your country is an EU Member State, does this include a national legislation for the transposition of the Open Data Directive?
P2	Is there a national open data strategy in your country?
P3	Is there an open data policy/strategy at regional or local level?
P4	Does the national strategy/policy include an action plan with measures to be implemented in the open data field?
P5	Does the national strategy/policy outline measures to incentivise the publication of and access to real-time or dynamic data?
P6	Does the national strategy/policy outline measures to incentivise the publication of and access to citizen-generated data?
P7	Does the national strategy/policy foster the discoverability of the aforementioned types of data from your country on data.europa.eu?
P8	Does the national strategy/policy outline measures to support the reuse of open data by the public sector?
P9	Does the national strategy/policy outline measures to support the reuse of open data by the private sector?
P10-a	Does the national strategy/policy mandate carrying out and maintaining a data inventory by public bodies, whether at national or local level?
P10-b	Do these data inventories include the data collected by public bodies that cannot be published as open data (e.g. in relation to the EU Data Governance Act (EU) 2022/868)?
P11	Is your country applying the implementing regulation (EU) 2023/138 on high-value datasets?
P12	Have the public bodies in your country denoted relevant datasets as high-value datasets in their metadata following the publication of the implementing regulation (EU) 2023/138 on high-value datasets?
P13	Is there a governance structure in place that enables the participation and/or inclusion of various open data stakeholders?
P14	How would you classify the model used for governing open data in your country?
P15	Does the governance structure ensure that the local and regional open data initiatives are facilitated and supported at national level?
P16	To what degree do local/regional public bodies conduct open data initiatives?
P17	Is a document describing the responsibilities and governance structure of the national (and/or regional/local) open data team publicly available?
P18	Is there a regular exchange of knowledge or experiences between the national open data team and the team maintaining the national portal?
P19	Does the governance model include the appointment of official roles in civil services that are dedicated to open data (e.g. open data officers)?
P20	Is there a regular exchange of knowledge or experiences between the national open data team and the wider network of open data officers in your country?
P21	Is there a regular exchange of knowledge or experiences between public sector bodies (i.e. the providers) and open data reusers (e.g. academia, citizens, businesses)?
P22	Do data publication plans exist at public body level?
P23	Are there processes to ensure that the open data policies/strategy previously mentioned are implemented (e.g. monitoring)?
P24	Do you update your policy/strategy as appropriate to ensure its success, such as based on data collected for monitoring?

P25	Are there any processes in place to assess if public sector bodies are charging for data above marginal cost?
P26-a	What are the top 3 challenges that your country is facing in the implementation of the mentioned open data policies/strategy?
P26-b	Are there activities in place to address these challenges in your country (e.g. with specific national/regional/local plans or initiatives)?
P27	Are there any activities in place to assist data holders with publishing their data as open data (i.e. to help them with the data opening process)?
P28	Is there a professional development or training plan for civil servants working with data in your country?
P29	Are there annually held national, regional or local events (e.g. hackathons, courses, conferences, users meet-ups, summer/winter schools) to promote open data and open data literacy in your country beyond the target group of public servants?

5.1.2. Full list of portal dimension questions

ID	Question
PT1	Is there a national portal in your country for that enables users to search for open datasets and find where to download open data?
PT2	For Explanation: * What is the technology stack of your portal (e.g. based on uData, CKAN, etc.)
PT3	Does the national portal offer to its users a way to programmatically query the metadata via an API?
PT4	Does the national portal offer to its users a way to programmatically query the metadata via a SPARQL access point?
PT5	Does the national portal offer/link to documentation on the use of APIs?
PT6	Does the national portal offer/link to documentation on the use of SPARQL?
PT7	Does the national portal provide functionality for users to contribute datasets they have produced or enriched?
PT8	Does the national portal offer a mechanism for users to provide general feedback, such as a 'Contact us' or 'Feedback' button that is placed in a visible spot and would allow users to send a general comment concerning the portal?
PT9	Does the national portal offer a mechanism for users to provide feedback on specific datasets, such as a 'feedback button' or a comment/discussion section under the dataset?
PT10	Does the national portal provide a mechanism for users to rate datasets?
PT11	Does the national portal enable users to find information and news on relevant open data topics in the country?
PT12	Does the national portal offer the possibility for users to receive notifications when new datasets are available on the national portal (RSS, ATOM feeds, email notifications etc.)?
PT13	Does the national portal enable users to request datasets, such as through a 'request data' button?
PT14	Are requests for datasets and their progress status presented in a transparent manner on the national portal?
PT15	Does the team monitor the extent to which requests (either via the portal or otherwise) result in the publication of the requested data?
PT16	Does the national portal offer a mechanism for users to exchange with others, such as a discussion forum?
PT17	Does the national portal showcase reuse cases, such as in a designated section of the portal?
PT18	Does the national portal reference the datasets that the showcased reuse cases are based on (i.e. there is a link between the reuse case in the showcase and the underlying dataset on the portal)?
PT19	Does the national portal provide the possibility for users to submit their own reuse cases?
PT20	Does the national portal offer a preview function for tabular data?
PT21	Does the national portal offer a preview function for geospatial data?
PT22	Do you promote high-value datasets on your national portal (e.g. use filtering features for reusers to easily find such datasets, use editorial features to promote the datasets, etc.)?
PT23	Do you monitor the portal's traffic (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.)?
PT24	Do you run analytics on API usage?

PT25	Besides monitoring portal traffic, do you perform any further activities to better understand the behaviour and needs of users of your portal (e.g. web analytics, surveys, or analysis of social media feeds)?
PT26	Do you use the insights about portal usage and about the behaviour and needs of portal users to improve the portal accordingly?
PT27	Do you undertake any activities to promote the portal and attract new users or new audiences?
PT28	Do you monitor what keywords are used to search for data and content on the portal?
PT29	Do you monitor the most and least consulted pages?
PT30	Do you take measures to optimise the search and discoverability of content (data and editorial)?
PT31	Is the metadata on your portal available in clear plain language to enable both humans and machines to read and understand it?
PT32	To what degree do public sector data providers contribute data to the portal?
PT33	Do you identify the data providers that are not yet publishing data on the national portal?
PT34	Were there concrete actions taken to assist these data providers with their publication process?
PT35	Besides the national open data portal, are there other regional and local portals?
PT36	Are regional and local portals listed above and their data sources discoverable via the national portal?
PT37	To what degree are regional and local sources harvested automatically?
PT38	Does the national portal include datasets that are real-time or dynamic?
PT39	Does the national portal provide a way for non-official data (i.e. not stemming from official sources, such as community-sourced/citizen-generated data) to be published?
PT40	Does the national portal allow users to see what data exists but cannot be made available as open data?
PT41	Does the national portal have a strategy to ensure its sustainability?
PT42	Is your national portal active on social media?
PT43	Are the portal's source code and relevant documentation and artefacts made available to the public (e.g. on platforms such as GitHub or GitLab)?
PT44	Do you monitor the characteristics of the data published on the portal, such as the distribution across categories, static vs. real-time data and how these change over time?
PT45	Does this monitoring enable the portal team and/or data providers to take action to improve their performance on the national portal?

5.1.3. Full list of quality dimension questions

ID	Question
Q1	Is there a pre-defined approach to ensure that metadata is kept up-to-date?
Q2	What percentage of the metadata on the national portal is obtained from the source automatically, rather than edited manually?
Q3	What is the average delay from the moment the metadata describing a dataset is updated at the source, and the moment the change is visible on the portal?
Q4	Do you undertake efforts to ensure that published data covers the full period from when it was first published until today, for example, the complete time series?
Q5	Have you implemented the DCAT-AP High Value Datasets (semiceu.github.io) tag to denote the High-Value Datasets in your (national) open data portal(s)?
Q6	Besides the DCAT-AP tag mentioned above, have you implemented any other measures to ensure that high-value datasets ((EU) 2023/138) are interoperable with datasets of other country?
Q7	Do you monitor the quality of the metadata available on your portal?
Q8	Do you publish information on the quality of the metadata available on the portal?
Q9	Do you publish guidelines (e.g. written materials) and have tools in place, to assist publishers in publishing high-quality metadata?
Q10	Do you set any standards on metadata quality that data providers must abide by (e.g. on the use of licence, minimum metadata describes, use of certain DCAT-AP properties, etc)?
Q11	Do your open data publication/licensing guidelines provide recommendations for the use of Creative Commons (CC) licences, specifically CC BY 4.0 and CC0?
Q12	What percentage of the open data available on the national portal is accompanied by licensing information?
Q13	How many different licences are used on your portal?

Q14	Besides providing guidelines, are there regular activities conducted or mechanisms in place to assist publishers in supplying high-quality datasets (metadata quality and data quality)?
Q15	Does the national portal follow the DCAT-AP framework or, if not, are standards in place to ensure interoperability with DCAT-AP?
Q16	What is the percentage of metadata on your portal that is DCAT-AP compliant, in terms of mandatory classes?
Q17	What is the percentage of metadata on your portal that uses DCAT-AP recommended classes?
Q18	What is the percentage of metadata on your portal that uses DCAT-AP optional classes?
Q19	Is there a national extension of the DCAT-AP standard developed for your country?
Q20	Do you investigate the most common causes for the lack of DCAT-AP compliance?
Q21	What is the percentage of datasets whose metadata provides a reference to where the data can be downloaded, or its API accessed ('download-URL' in the DCAT-AP specification)?
Q22	What is the percentage of datasets whose metadata provides a reference to a web page from where the data can be accessed ('access-URL' in the DCAT-AP specification)?
Q23	Do you use a model (such as the 5-Star Open Data or FAIR) to assess the quality of deployment of data in your country?
Q24	Do you conduct activities to promote and familiarise data providers with ways to ensure higher quality data?
Q25	What percentage of datasets are made available under an open licence?
Q26	What percentage of licences are provided in a structured data format?
Q27	What percentage of datasets are provided in an open and machine-readable format?
Q28	What percentage of datasets consistently use Uniform Resource Identifiers?
Q29	What percentage of datasets link to other renowned sources to provide additional context for the users, e.g. in a linked data fashion?

5.1.4. Full list of impact dimension questions

ID	Question
I1	Do you have a definition of open data reuse in your country?
I2	Are there any processes in place to monitor the level of reuse of your country's open data?
I3	Are there any activities in place to encourage public bodies to monitor the reuse of their own published data (e.g. incentives or obligations in place for public bodies or civil servants of national government)?
I4	Does your country have processes in place to monitor and measure the level of reuse of high-value datasets ((EU) 2023/138)?
I5	Has your government specified what 'impact of open data' means (e.g. in a strategy document)?
I6	Do you have a methodology in place to measure the impact of open data in your country?
I7	Is there collaboration between government and civil society or academia to create open data impact in your country?
I8	Have any public bodies in your country launched or performed any activities in the past year to understand which and how (open) datasets are reused?* If yes, which of the following activities? * Multiple answers are possible.
I8-a	Automated feedback mechanisms tracking users' access to datasets
I8-b	Surveys
I8-c	Interviews/workshops with reusers
I8-d	Other
I9	Have any public bodies in your country launched or performed any activities in the past year to better understand reusers' needs in order to further stimulate the reuse of open data?
I9-a	Regular feedback sessions with portal users
I9-b	Social media sentiment analysis
I9-c	Other
I10	Have any public bodies in your country developed any systematic way of gathering reuse cases?
I11	Are there any public bodies in your country that have developed a systematic ways of classifying the gathered reuse cases?
I12	Is any data on the impact created by open data on governmental challenges (e.g. efficiency, effectiveness, transparency, decision-making capacity) available in your country such as from research studies, impact

assessments, or other systematic investigations that quantify the results or broader effects of open data being reused?

- I13 Is the use of open data in your country having an impact on the efficiency and effectiveness of the government (at any level) in delivering public services?
- I14 Is the use of open data in your country having an impact on transparency and accountability of public administrations?
- I15 Is the use of open data in your country having an impact on policy-making processes (i.e. are public administrations making use of the data as evidence for the problem identification and policy formulation)?
- I16 Is the use of open data in your country having an impact on decision-making processes (i.e. are public administrations making use of the data as evidence to be included in their daily operations)?
- I17 Is any data on the impact created by open data on social challenges (e.g. inequality, healthcare, education) available in your country such as from research studies, impact assessments, or other systematic investigations that quantify the results or broader effects of open data being reused?
- I18 Is the use of open data in your country having an impact on society's ability to reduce inequality and better include minorities, migrants, and/or refugees?
- I19 Is the use of open data in your country having an impact on issues about housing in urban areas?
- I20 Is the use of open data in your country having an impact on the issues of health and wellbeing?
- I21 Is the use of open data in your country having an impact on the society's level of education and skills (e.g. data literacy)?
- I22 Is any data on the impact created by open data on environmental challenges (e.g. climate change and environmental degradation, as highlighted in the European Green Deal) available in your country such as from research studies, impact assessments, or other systematic investigations that quantify the results or broader effects of open data being reused?
- I23 Is the use of open data in your country having an impact on the level of protection of biodiversity (e.g. maintaining a good air and water quality)?
- I24 Is the use of open data in your country having an impact on the achievement of more environment-friendly cities (e.g., environment-friendly transport systems, waste management etc.)?
- I25 Is the use of open data in your country having an impact on the fight against climate change, for example by undertaking predictive monitoring, preventive actions, or a differentiated response to connected disasters?
- I26 Is the use of open data in your country having an impact on the consumption of energy based on fuel and the switch to renewables?
- I27 Is any data on the economic impact (e.g. GDP, employment, productivity, innovation, new businesses created etc.) of open data available in your country such as from research studies, impact assessments, or other systematic investigations that quantify the results or broader effects of open data being reused?
- I28 Is the use of open data in your country having an impact on the level of employment?
- I29 Is the use of open data in your country having an impact on the level of innovation and the adoption of new technologies?
- I30 Is the use of open data in your country having an impact on the level of entrepreneurship (especially of women and minorities) and business creation (especially with Small- and Medium-sized Enterprises)?
- I31 Is the use of open data in your country having an impact on the level of productivity?

5.2. Initial open data descriptive profile parameters developed in phase 1

5.2.1. Policy dimension parameters developed in phase 1

Parameter	Description	ID
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P5
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P6
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P7
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P8
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P9
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P10-a
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P11
Data accessibility	This dimension assesses the types of data promoted, their discoverability, and the mechanisms supporting reuse across sectors.	P12
Ecosystem development	This dimension focuses on the nature of activities that a country fosters to ensure a self-improving open data ecosystem. This includes the development of skills, mechanisms for collaboration, community engagement efforts, and structured feedback loops.	P18
Ecosystem development	This dimension focuses on the nature of activities that a country fosters to ensure a self-improving open data ecosystem. This includes the development of skills, mechanisms for collaboration, community engagement efforts, and structured feedback loops.	P20
Ecosystem development	This dimension focuses on the nature of activities that a country fosters to ensure a self-improving open data ecosystem. This includes the development of skills, mechanisms for collaboration, community engagement efforts, and structured feedback loops.	P21
Ecosystem development	This dimension focuses on the nature of activities that a country fosters to ensure a self-improving open data ecosystem. This includes the development of skills, mechanisms for collaboration, community engagement efforts, and structured feedback loops.	P28
Ecosystem development	This dimension focuses on the nature of activities that a country fosters to ensure a self-improving open data ecosystem. This includes the development of skills, mechanisms for collaboration, community engagement efforts, and structured feedback loops.	P29
Ecosystem development	This dimension focuses on the nature of activities that a country fosters to ensure a self-improving open data ecosystem. This includes the development of skills, mechanisms for collaboration, community engagement efforts, and structured feedback loops.	P26-a
Ecosystem development	This dimension focuses on the nature of activities that a country fosters to ensure a self-improving open data ecosystem. This includes the development of skills, mechanisms for collaboration, community engagement efforts, and structured feedback loops.	P26-b
Governance	This dimension evaluates the structures, roles, and coordination mechanisms that support open data governance and stakeholder inclusion.	P13
Governance	This dimension evaluates the structures, roles, and coordination mechanisms that support open data governance and stakeholder inclusion.	P14*

Governance	This dimension evaluates the structures, roles, and coordination mechanisms that support open data governance and stakeholder inclusion.	P15
Governance	This dimension evaluates the structures, roles, and coordination mechanisms that support open data governance and stakeholder inclusion.	P16
Governance	This dimension evaluates the structures, roles, and coordination mechanisms that support open data governance and stakeholder inclusion.	P17
Governance	This dimension evaluates the structures, roles, and coordination mechanisms that support open data governance and stakeholder inclusion.	P19
Governance policy	This dimension focuses on how a country ensures their open data ambitions don't just exist on paper, but actually gets implemented, monitored, and supported.	P4
Operationalisation policy	This dimension focuses on how a country ensures their open data ambitions don't just exist on paper, but actually gets implemented, monitored, and supported.	P23
Operationalisation policy	This dimension focuses on how a country ensures their open data ambitions don't just exist on paper, but actually gets implemented, monitored, and supported.	P22
Operationalisation policy	This dimension focuses on how a country ensures their open data ambitions don't just exist on paper, but actually gets implemented, monitored, and supported.	P27
Operationalisation policy	This dimension focuses on how a country ensures their open data ambitions don't just exist on paper, but actually gets implemented, monitored, and supported.	P25
Operationalisation strategic and legal foundations	This dimension focuses on how a country ensures their open data ambitions don't just exist on paper, but actually gets implemented, monitored, and supported.	P19
Strategic and legal foundations	This dimension captures the existence, scope, and coherence of national and subnational open data policies, strategies, and legal frameworks.	P1
Strategic and legal foundations	This dimension captures the existence, scope, and coherence of national and subnational open data policies, strategies, and legal frameworks.	P2
Strategic and legal foundations	This dimension captures the existence, scope, and coherence of national and subnational open data policies, strategies, and legal frameworks.	P3
Strategic and legal foundations	This dimension captures the existence, scope, and coherence of national and subnational open data policies, strategies, and legal frameworks.	P24

5.2.2. Portal dimension parameters developed in phase 1

Parameter	Question	ID
Analytics	Do you monitor what keywords are used to search for data and content on the portal?	PT28
Analytics	Do you monitor the most and least consulted pages?	PT29
Analytics	Do you monitor the portal's traffic (e.g. number of unique visitors, visitor profiles, percentage of machine traffic, number of downloads)?	PT23
Analytics	Do you run analytics on API usage?	PT24
Analytics	Besides monitoring portal traffic, do you perform any further activities to better understand the behaviour and needs of users of your portal (e.g. web analytics, surveys, or analysis of social media feeds)?	PT25
Analytics	Do you use the insights about portal usage and user behaviour to improve the portal accordingly?	PT26
Analytics	Do you monitor the characteristics of the data published on the portal, such as the distribution across categories, static vs. real-time data, and how these change over time?	PT44
Analytics	Does this monitoring enable the portal team and/or data providers to take action to improve their performance on the national portal?	PT45
Portal technical foundations	Does the national portal enable users to find information and news on relevant open data topics in the country?	PT11
Portal technical foundations	Does the national portal offer the possibility for users to receive notifications when new datasets are available (e.g. RSS, ATOM feeds, email notifications)?	PT12
Portal technical foundations	Does the national portal showcase reuse cases, such as in a designated section of the portal?	PT17

Portal technical foundations	Does the national portal reference the datasets that the showcased reuse cases are based on?	PT18
Portal technical foundations	What is the technology stack of your portal (e.g. based on uData, CKAN, etc.)?	PT2
Portal technical foundations	Are the portal's source code and relevant documentation and artefacts made available to the public (e.g. on GitHub or GitLab)?	PT43
Portal technical foundations	Does the national portal offer to its users a way to programmatically query the metadata via an API?	PT3
Portal technical foundations	Does the national portal offer to its users a way to programmatically query the metadata via a SPARQL access point?	PT4
Portal technical foundations	Do you promote high-value datasets on your national portal (e.g. filtering features, editorial promotion, etc.)?	PT22
Portal technical foundations	Do you take measures to optimise the search and discoverability of content (data and editorial)?	PT30
Portal technical foundations	Is the metadata on your portal available in clear plain language to enable both humans and machines to read and understand it?	PT31
Portal technical foundations	Does the national portal include datasets that are real-time or dynamic?	PT38
Portal technical foundations	Does the national portal offer a preview function for tabular data?	PT20
Portal technical foundations	Does the national portal offer a preview function for geospatial data?	PT21
Portal technical foundations	Does the national portal offer or link to documentation on the use of APIs?	PT5
Portal technical foundations	Does the national portal offer or link to documentation on the use of SPARQL?	PT6
Community engagement	Do you undertake any activities to promote the portal and attract new users or new audiences?	PT27
Community engagement	Is your national portal active on social media?	PT42
Community engagement	Does the national portal provide functionality for users to contribute datasets they have produced or enriched?	PT7*
Community engagement	Does the national portal offer a mechanism for users to provide general feedback, such as a 'Contact us' or 'Feedback' button?	PT8
Community engagement	Does the national portal offer a mechanism for users to provide feedback on specific datasets, such as a 'feedback button' or a comment/discussion section?	PT9
Community engagement	Does the national portal provide a mechanism for users to rate datasets?	PT10
Community engagement	Does the national portal enable users to request datasets, such as through a 'request data' button?	PT13
Community engagement	Are requests for datasets and their progress status presented in a transparent manner on the national portal?	PT14
Community engagement	Does the team monitor the extent to which requests (either via the portal or otherwise) result in the publication of the requested data?	PT15
Community engagement	Does the national portal offer a mechanism for users to exchange with others, such as a discussion forum?	PT16
Community engagement	Does the national portal provide the possibility for users to submit their own reuse cases?	PT19
Community engagement	Does the national portal provide a way for non-official data (e.g. community-sourced or citizen-generated data) to be published?	PT39*
Community engagement	Do you identify the data providers that are not yet publishing data on the national portal?	PT33
Community engagement	Were there concrete actions taken to assist these data providers with their publication process?	PT34

Community engagement	To what degree do public sector data providers contribute data to the portal?	PT32
Community engagement	Does the national portal allow users to see what data exists but cannot be made available as open data?	PT40
Multi-level integration	Besides the national open data portal, are there other regional and local portals?	PT35
Multi-level integration	Are regional and local portals and their data sources discoverable via the national portal?	PT36
Multi-level integration	To what degree are regional and local sources harvested automatically?	PT37

5.2.3. Quality dimension parameters developed in phase 1

Parameter	Description	ID
Data discoverability	Focuses on how easily users can find and access datasets, including technical and user-facing aspects.	Q21
Data discoverability	Focuses on how easily users can find and access datasets, including technical and user-facing aspects.	Q22
Data discoverability	Focuses on how easily users can find and access datasets, including technical and user-facing aspects.	Q27
Data discoverability	Focuses on how easily users can find and access datasets, including technical and user-facing aspects.	Q28
Data discoverability	Focuses on how easily users can find and access datasets, including technical and user-facing aspects.	Q29
Licensing	Addresses the clarity, openness, and structure of licensing information for data reuse.	Q11
Licensing	Addresses the clarity, openness, and structure of licensing information for data reuse.	Q12
Licensing	Addresses the clarity, openness, and structure of licensing information for data reuse.	Q13
Licensing	Addresses the clarity, openness, and structure of licensing information for data reuse.	Q25
Licensing	Addresses the clarity, openness, and structure of licensing information for data reuse.	Q26
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q1
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q7
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q8
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q9
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q10
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q14
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q2
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q3*
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q6
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q5

Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q20
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q15
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q16
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q17
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q18
Metadata governance	Covers how metadata is managed, standardised, and made interoperable across systems and borders.	Q19
Data completeness	Ensures that datasets are historically complete and updated in a timely manner.	Q4
Data completeness	Ensures that datasets are historically complete and updated in a timely manner.	Q23*
Data completeness	Ensures that datasets are historically complete and updated in a timely manner.	Q24*

5.2.4 Impact dimension parameters developed in phase 1

Parameter	Question	ID
Monitoring and evaluation	Are there any processes in place to monitor the level of reuse of your country's open data?	I2
Monitoring and evaluation	Are there any activities in place to encourage public bodies to monitor the reuse of their own published data (e.g. incentives or obligations in place for public bodies or civil servants of national government)?	I3
Monitoring and evaluation	Does your country have processes in place to monitor and measure the level of reuse of high-value datasets ((EU) 2023/138)?	I4
Monitoring and evaluation	Have any public bodies in your country launched or performed any activities in the past year to understand which and how (open) datasets are reused?	I8
Monitoring and evaluation	Have any public bodies in your country launched or performed any activities in the past year to better understand reusers' needs in order to further stimulate the reuse of open data?	I9
Monitoring and evaluation	Have any public bodies in your country developed any systematic way of gathering reuse cases?	I10
Monitoring and evaluation	Are there any public bodies in your country that have developed systematic ways of classifying the gathered reuse cases?	I11
Policy framework	Do you have a definition of open data reuse in your country?	I1
Policy framework	Has your government specified what 'impact of open data' means (e.g. in a strategy document)?	I5
Policy framework	Do you have a methodology in place to measure the impact of open data in your country?	I6
Economic impact	Is any data on the economic impact (e.g. GDP, employment, productivity, innovation, new businesses created etc.) of open data available in your country?	I27*
Economic impact	Is the use of open data in your country having an impact on the level of employment?	I28*
Economic impact	Is the use of open data in your country having an impact on the level of innovation and the adoption of new technologies?	I29*
Economic Impact	Is the use of open data in your country having an impact on the level of entrepreneurship (especially of women and minorities) and business creation (especially with Small- and Medium-sized Enterprises)?	I30*
Economic Impact	Is the use of open data in your country having an impact on the level of productivity?	I31*
Environmental impact	Is any data on the impact created by open data on environmental challenges (e.g. climate change and environmental degradation, as highlighted in the European Green Deal) available in your country?	I22*

Environmental impact	Is the use of open data in your country having an impact on the level of protection of biodiversity (e.g. maintaining a good air and water quality)?	I23*
Environmental impact	Is the use of open data in your country having an impact on the achievement of more environment-friendly cities (e.g., environment-friendly transport systems, waste management etc.)?	I24*
Environmental impact	Is the use of open data in your country having an impact on the fight against climate change, for example by undertaking predictive monitoring, preventive actions, or a differentiated response to connected disasters?	I25*
Environmental impact	Is the use of open data in your country having an impact on the consumption of energy based on fuel and the switch to renewables?	I26*
Public sector impact	Is any data on the impact created by open data on governmental challenges (e.g. efficiency, effectiveness, transparency, decision-making capacity) available in your country?	I12*
Public sector impact	Is the use of open data in your country having an impact on the efficiency and effectiveness of the government (at any level) in delivering public services?	I13*
Public sector impact	Is the use of open data in your country having an impact on transparency and accountability of public administrations?	I14*
Public sector impact	Is the use of open data in your country having an impact on policy-making processes?	I15*
Public sector impact	Is the use of open data in your country having an impact on decision-making processes?	I16*
Social impact	Is any data on the impact created by open data on social challenges (e.g. inequality, healthcare, education) available in your country?	I17*
Social impact	Is the use of open data in your country having an impact on society's ability to reduce inequality and better include minorities, migrants, and/or refugees?	I18*
Social impact	Is the use of open data in your country having an impact on issues about housing in urban areas?	I19*
Social impact	Is the use of open data in your country having an impact on the issues of health and wellbeing?	I20*
Social impact	Is the use of open data in your country having an impact on the society's level of education and skills (e.g. data literacy)?	I21*



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