Open Data Maturity

Portal

2024

Open Data Maturity Report

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Chapter 5: Open data portals

Public sector organisations at the European, national and local levels create open data portals to publish open data and make it easily accessible to anyone who wishes to use it. These websites function as directories to help users find public data resources. Rather than serving only as storage sites, these portals often act as metacatalogues, focusing on making data stored elsewhere easily discoverable in a central location. Governments that operate these portals usually engage in a range of activities to promote the availability and reuse of public sector information. In this broader context, portals also play a key role in raising awareness about open data and encouraging its reuse among users.

The **portal** dimension of the open data maturity (ODM) assessment is designed to encourage national portals to offer features and functionalities that meet user needs and deliver a positive user experience. A well-designed, user-friendly portal can boost the adoption of open data and help transform casual users into active reusers.

In brief, the **portal** dimension investigates the functionality of national open data portals, how user needs and behaviours are incorporated into portal improvements, the availability of open data across various sectors and strategies to ensure the portal's long-term sustainability. Table 1 provides an overview of the indicators used to assess the portal dimension.

Table 1: Indicators of the portal dimension

Indicator	Key elements
Portal features	Portal features ensure access to datasets and relevant content, and include more advanced features such as SPARQL Protocol and RDF Query Language (SPARQL) search, discussion forums, rating of datasets, means of requesting datasets and transparency on the status of requested datasets. Activities are conducted to promote the visibility and reuse of high-value datasets (HVDs) through the portal.
Portal usage	Traffic to the portal is monitored, and analytics tools are used to gain insights into users' behaviour and the most and least consulted data categories. In addition, the portal offers application programming interfaces (APIs) or SPARQL end points through which advanced users can access the metadata programmatically.
Data provision	Most data providers contribute data to the national portal, and actions are taken to support data publication. In addition, access to real-time data is provided through the portal, and data that does not stem from official sources (e.g. citizen-generated data) can be uploaded. Furthermore, data from regional or local sources is discoverable on the national portal.
Portal sustainability	A strategy to ensure the sustainability of the portal has been determined, and activities are conducted to ensure the portal's visibility, including through a social media presence. In addition, user surveys are conducted regularly and feed into a review process to improve the portal.

This chapter will first present overall performance on the portal dimension and then provide a summary of the results and best practices for each indicator.

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5.1. Overall performance on the portal dimension

In 2024, the portal dimension is the second-best performing dimension among the EU-27, achieving a maturity score of 82 % (Figure 1). This is despite its being the only dimension to have experienced a decreased score compared with 2023, with a drop of 3 percentage points (pp). The reduced score on the portal dimension in 2024 can be attributed to a decrease in all four of the underlying indicators in this dimension, with the 'portal features' indicator showing the largest decline (– 6 pp). This decline may be partially influenced by changes in the methodology, including introducing new questions that set higher requirements.

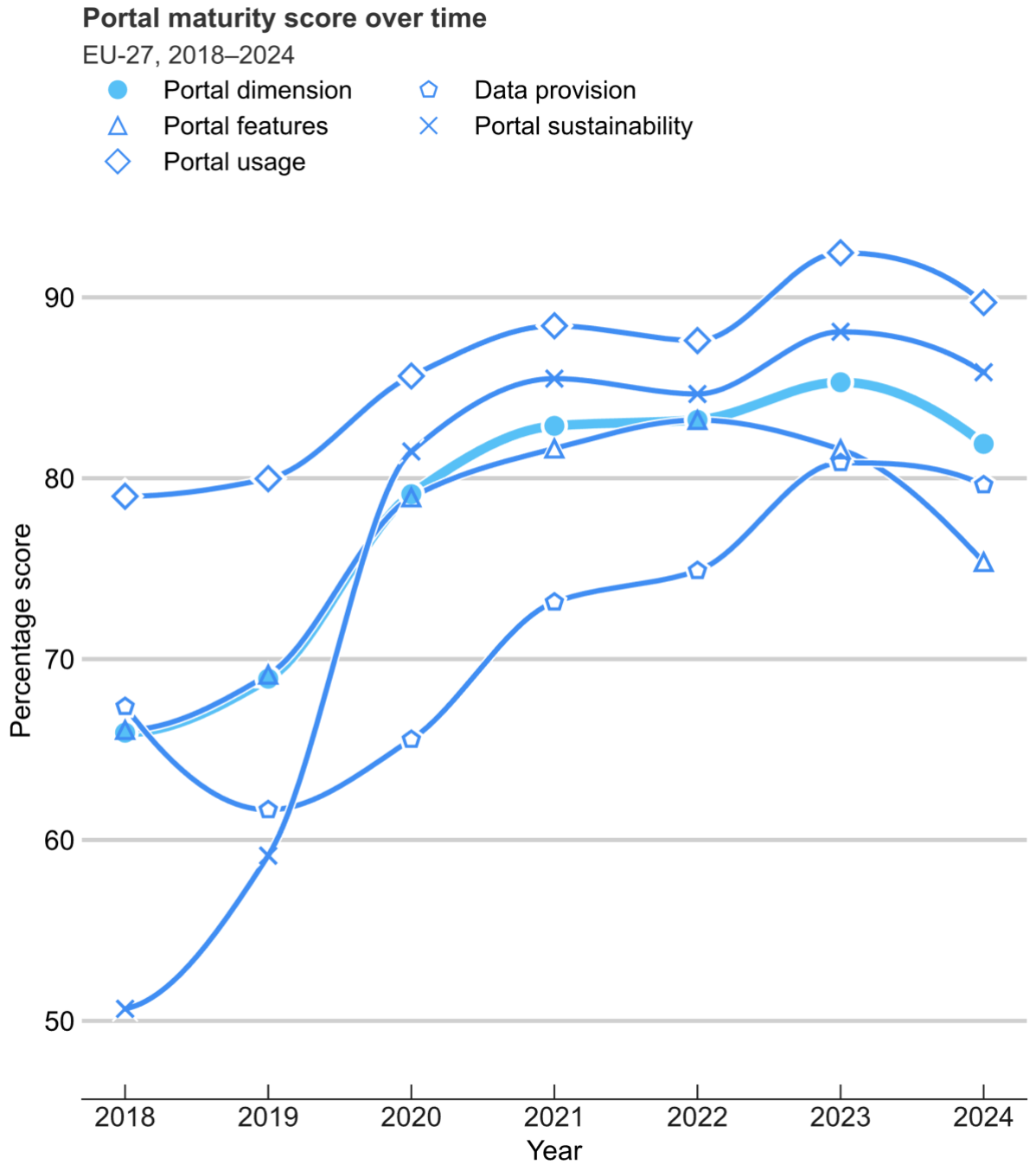

Figure 1: The EU-27 average score on the portal dimension decreased year-on-year

Regarding individual country performance, **Poland** stands out as the only participating country to report having conducted all of the activities assessed in the questionnaire, earning a 100 % score on this dimension, a 2 pp increase from 2023 (Figure 2). **France** follows closely in second place, with a maturity score of 98.5 % (a 2 pp increase from 2023). In total, 20 countries surpass the EU average of 82 %, with 11 countries achieving scores above 90 %. Notably, among these are **Ukraine**, a candidate country with a score of 94 %, and **Norway**, a European Free Trade Association (EFTA) country with a score of 91 %.

Czechia (+ 20 pp) and **Croatia** (+ 14 pp) achieved double-digit improvements in their maturity scores compared with 2023. **Albania** (+ 9 pp) and **Slovakia** (+ 9 pp) are also among the most improved countries in this dimension. **Czechia's** improved maturity can be attributed to progress across all four indicators of the portal dimension. The country achieved a notable increase in the 'portal usage' indicator (+ 48 pp), reflecting a focus on enhancing user engagement, including monitoring trends and user preferences and enabling regular updates to better align the portal's offerings with user demand. Many countries, including **Czechia**, have integrated capabilities for programmatic metadata queries via APIs and SPARQL access points, demonstrating a well-defined technology stack. The Comprehensive Knowledge Archive Network (CKAN) remains the most widely adopted platform, followed by Udata and LinkedPipes. The LinkedPipes extract, transform and load (ETL) tool, the LinkedPipes Data Catalog Vocabulary – Application Profile (DCAT-AP) viewer and Openlink Virtuoso are used by **Czechia**, which bases its implementation on open-source DCAT-AP-compliant tools.

Highlight from Czechia – analysing users' experiences through a questionnaire

One of the key practices highlighted in this year's report is basing portal improvements on user feedback.

Czechia, for example, initiated research at the beginning of 2024 focused on users' experiences of its national portal and data catalogue. The research involved a questionnaire, distributed via a newsletter and published on the portal, and direct interviews and focus group sessions with users. The findings from this research are currently being analysed and will inform the strategy for developing the portal in 2025.

Read more about this trend in Section 5.3.

Croatia saw a large improvement in the 'data provision' indicator (+ 21 pp). Croatia allows both official and non-official providers to publish open datasets, and the national portal aggregates data from various local and regional portals across the country. However, a common challenge, also reported by other countries, has been the incomplete harvesting of metadata from all local and regional portals. While some countries automatically harvest the data from other sources, other countries strike ad hoc agreements with regional and local bodies to extract their data. Croatia has set up an automated synchronisation system with three of the seven regional and local portals identified, specifically those of Rijeka, Zagreb and Varaždin. This advancement ensures that the national portal is updated more frequently, moving Croatia closer to establishing a comprehensive one-stop shop for data across the country.

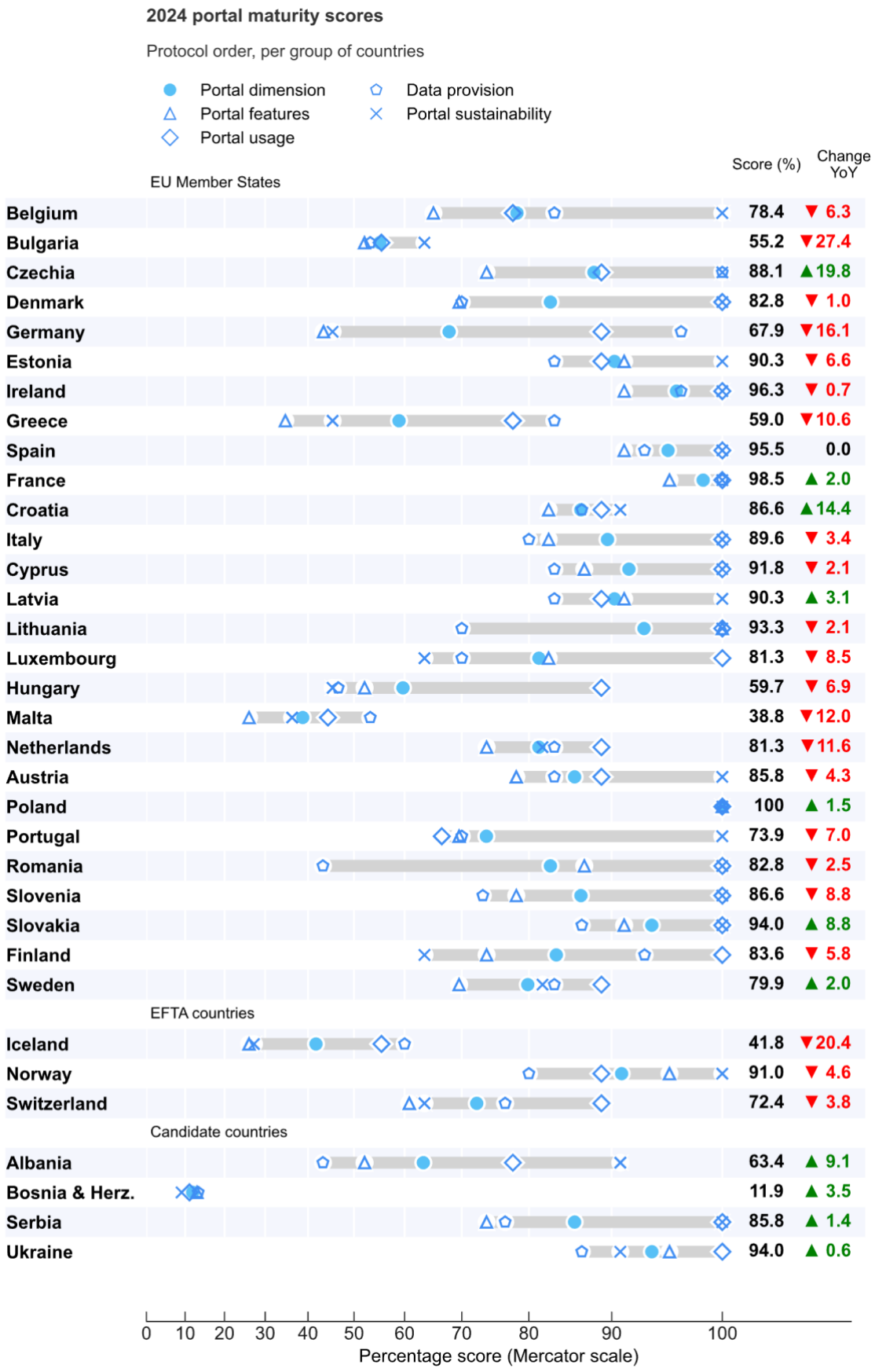

Figure 2: The majority of countries had a decreased score on the portal dimension in 2024. (YoY: year-on-year).

Highlight from Croatia – supporting local and regional portals in publishing metadata

One of the key practices highlighted in this year's report is countries providing support to data providers at the local and regional levels to increase the quality and quantity of data on the national portal.

The Central State Office for the Development of Digital Society and the Information Commissioner in Croatia play key roles in supporting public authorities and users in the process of publishing open data. As government bodies responsible for promoting and facilitating the publication of open data at both the national and the local levels, they provide comprehensive assistance through the following activities.

- **Online education (webinars).** They organise webinars focused on open data, where public authorities and other interested parties receive training on the importance of open data, the processes involved in publishing metadata and how to effectively manage and use open data. These webinars serve as a key resource for building capacity and awareness among data publishers.
- **Guidelines on reuse of open data.** They provide detailed guidelines aimed at helping public authorities understand how to reuse open data. These guidelines outline the best practices for publishing metadata, ensuring the data's quality and encouraging its use in innovation and decision-making processes by various stakeholders.
- **Direct communication and assistance.** They maintain open channels of communication via email and over the telephone, through which public authorities can seek advice on their legal obligations to publish open data on the national open data portal. They also offer technical and legal assistance in ensuring the smooth publication and management of this data, helping authorities to comply with relevant laws and standards.

Read more about this trend in Section 5.4.

Slovakia achieved full maturity scores on the 'portal usage' and 'portal sustainability' indicators. Countries with high maturity in portal sustainability, like Slovakia, have long-term strategies for maintaining the national portal. This includes making the portal's source code, documentation and other relevant artefacts publicly accessible, often hosted on platforms like GitHub or GitLab. Such transparency and open access to resources foster community trust and allow developers to contribute to ongoing improvements, reinforcing the portal's sustainability and adaptability over time.

Highlight from Slovakia – the SPARQL end point

One of the key practices highlighted in this year's report is the offering of tools to data providers to assist them with publishing data.

Slovakia has implemented a SPARQL end point with predefined queries to assist data providers in monitoring and improving the quality of their metadata. This tool allows providers to track key metrics, such as metadata quality, and to benchmark their performance against other providers. With these insights, providers can more effectively ensure that their data aligns with national standards and user expectations.

Additionally, a dedicated web page offers an overview of basic statistics. This web page provides an overview of metadata quality indicators, enabling providers and stakeholders to easily assess the consistency and completeness of the metadata available on the national platform. The goal is to promote high standards in metadata management and to facilitate continuous improvement through accessible, data-driven insights, thereby leading to increases in the usability of the datasets and supporting a more transparent and reliable open data ecosystem.

Read more about this trend in Section 5.4.

Albania achieved the most significant progress on the 'portal sustainability' indicator (+ 48 pp), with progress also made on the 'portal features' indicator (+ 7 pp). Key improvements included implementing a long-term strategy to ensure the portal's sustainability and initiating regular monitoring of published data characteristics, such as category distribution, the ratio of static to real-time data and how these metrics evolve over time. This monitoring process allows the portal team and data providers to make informed improvements, ensuring higher performance and more relevant data offerings on the national portal.

Highlight from Albania – action plan for portal sustainability

One of the key practices highlighted in this year's report is the setting up of long-term strategy plans for better maintenance of the portal.

For example, in **Albania**, the National Agency of Information Society, which oversees the opendata.gov.al portal, has appointed dedicated contacts who coordinate regularly with representatives from other institutions to boost the number of available datasets. Additionally, the agency collaborates closely with the Prime Minister's Office, which plays a key role in leading high-level initiatives, including the preparation of annual reports and documentation for the Open Government Partnership. These reports are made publicly accessible on opendata.gov.al. As part of the World-Bank-supported programme 'Improving equitable access to high-standard, sustainable public services at central and sub-national levels', an action plan and strategy are being developed to enhance the open data portal's functionality and ensure its long-term sustainability.

Read more about this trend in Section 5.5.

5.2. Portal features

This indicator assesses both basic and advanced features of national open data portals. Basic functionalities include advanced search options (e.g. multifield searches and filtering), dataset downloads and the ability to search by file format or data domain. More advanced portals allow users to access data programmatically through APIs or SPARQL queries. This indicator also looks at whether users can request and rate datasets and if the portals showcase reuse cases. Additionally, it evaluates features that promote online interaction between data providers and users, including discussion forums, feedback channels and notifications for new datasets.

Overview of the national portals

All participating countries, **except Bosnia and Herzegovina**, have a national open data portal. However, there are some local open data portals in **Bosnia and Herzegovina**. To ensure more advanced and flexible search capabilities, many national open data portals provide APIs (26 EU Member States; 96 %) or SPARQL end points (12 Member States; 44 %), along with documentation, to enable programmatic querying of metadata. These tools allow users and developers to interact directly with the portal's underlying data structures, facilitating sophisticated searches beyond what is possible through a standard web interface. Table 2 provides an overview of the key features of national open data portals.

Table 2: Overview of national open data portals for all of the 2024 ODM participants

Country	National portal website	Technology stack	API present?	SPARQL access point present?
Member States				
Belgium	https://data.gov.be/en	Custom back end with Drupal front end (see GitHub)	Yes (see API)	
Bulgaria	https://data.egov.bg	Custom, including Fluentd, Elasticsearch node, MariaDB and Graylog	Yes (see API)	
Czechia	https://data.gov.cz/english	Custom, including LinkedPipes	Yes (see API)	Yes (see end point)
Denmark	www.datavejviser.dk	CKAN back end with a DCAT plug-in and a front end designed with React	Yes (see API)	
Germany	https://www.govdata.de	Custom, including the CMS Typo3 for editorial content and Piveau for data storage	Yes (migrating from CKAN API to Piveau API)	Yes (see end point)
Estonia	https://avaandmed.eesti.ee	Custom, including Typescript, PostgreSQL and Solr	Yes (see API)	Yes (see end point)
Ireland	https://data.gov.ie	CKAN	Yes (see API)	
Greece	https://data.gov.gr http://repository.data.gov.gr	Custom based on CKAN	Yes (see API)	
Spain	https://datos.gob.es/en	CKAN and Drupal	Yes (see API)	Yes (see end point)
France	https://www.data.gouv.fr	Udata	Yes (see API)	Yes (see end point)
Croatia	https://data.codeforcroatia.org/	CKAN	Yes (see API)	Yes (see end point)
Italy	https://dati.gov.it	CKAN and Drupal	Yes (see API)	Yes (see end point)
Cyprus	https://www.data.gov.cy/	EKAN	Yes (see API)	
Latvia	https://data.gov.lv/eng	CKAN	Yes (see API)	Yes (see end point)
Lithuania	https://data.gov.lt/?lang=en	Self-developed solution in Python	Yes (see API)	Yes (see end point)
Luxembourg	https://data.public.lu/en	Udata	Yes (see API)	
Hungary	https://kozadatportal.hu	CKAN	Yes (see API)	

Country	National portal website	Technology stack	API present?	SPARQL access point present?
Malta	https://open.data.gov.mt	Custom		
Netherlands	https://data.overheid.nl/en	CKAN	Yes (see API)	
Austria	https://www.data.gv.at/en	CKAN and Wordpress	Yes (see API)	
Poland	https://dane.gov.pl/	Custom, including Falcon, Django, RDFLib, Wagtail CMS, Typescript (microservice architecture)	Yes (see API)	Yes (see end point)
Portugal	https://dados.gov.pt/en/	Udata	Yes (see API)	
Romania	https://data.gov.ro/en	CKAN	Yes (see API)	
Slovenia	https://podatki.gov.si	CKAN	Yes (see API)	
Slovakia	https://data.gov.sk/en	Custom, including LinkedPipes		Yes (see end point)
Finland	https://www.avoindata.fi/en	CKAN	Yes (see API)	Yes (see end point)
Sweden	https://www.dataportal.se/en	Custom, including EntryScape, the Strapi CMS and NodeBB	Yes (see API)	
EFTA countries				
Iceland	https://opingogn.is	CKAN		
Norway	https://data.norge.no	Custom, including React, Java/Kotlin, Python, Jena, Fuseki, Elasticsearch, PostgreSQL, MongoDB and Kafka	Yes (see API)	Yes (see end point)
Switzerland	https://opendata.swiss/en/	CKAN	Yes (see API)	
Candidate countries				
Bosnia and Herzegovina	None			
Albania	https://opendata.gov.al/en		Yes	
Serbia	https://data.gov.rs	Udata	Yes (see API)	
Ukraine	https://data.gov.ua/en	CKAN	Yes (see API)	Yes (see end point)

(Questions PT1, PT2, PT3 and PT4)

(CMS: content management system).

Preview functions

Making data more accessible without requiring downloads can enhance usability, encouraging individuals to engage with and analyse the data directly. This approach applies to both tabular and geospatial data, fostering a more interactive and user-friendly experience. Table 3 presents an overview of how countries responded to the questions on this topic.

Table 3: Countries' responses to questions on preview functions

	Does the national portal offer a preview function for tabular data?	*Does the national portal offer a preview function for geospatial data?*
EU-27	18 Member States (67 %) report that they offer a preview function for tabular data.	15 Member States (56 %) report having a preview function for geospatial data. This is an increase from 2023, with **Croatia**, **France** and **Sweden** the latest additions to this group.
EFTA	**Norway** and **Switzerland** report having preview functions for tabular data.	**Norway** and **Switzerland** report having preview functions for geospatial data. This remained stable from 2023.
Candidate	**Albania**, **Serbia** and **Ukraine** report having preview functions for tabular data.	**Albania** and **Ukraine** report having a preview function for geospatial data.

(Questions PT20 and PT21)

In most portals, users can activate a 'preview' feature to quickly explore data without needing to download it. This is true of a diverse range of datasets. For example, in **Albania**, users can preview datasets on healthcare centres and fuel imports. In **Sweden**, geospatial data such as air humidity can be viewed, while, in **Estonia**, users can explore data on ports.

Providing feedback on the portal

To encourage continued improvement and usability of the national portal, countries can offer a mechanism for users to provide general feedback, such as a 'Contact us' or 'Feedback' button placed in a visible spot that allows users to send a general comment concerning the portal. Feedback can also be specific to certain datasets. Table 4 presents an overview of how countries responded to the questions on this topic.

Table 4: Countries' responses to questions on portal feedback mechanisms

	Does the national portal offer a mechanism for users to provide general feedback?	*Does the national portal offer a mechanism for users to provide feedback on specific datasets?*	*Does the national portal provide a mechanism for users to rate datasets?*
EU-27	25 Member States (93 %) enable users to provide general feedback on the portal. **Czechia** and **Luxembourg** newly report offering this feature.	22 Member States (81 %) enable users to provide feedback on a specific dataset.	14 Member States (52 %) enable users to rate datasets. **Latvia** and **Poland** newly report offering this feature.
EFTA	All three participating EFTA countries enable users to provide feedback on the portal, with **Switzerland** newly reporting this.	**Iceland** and **Norway** enable users to provide feedback on specific datasets.	None of the participating EFTA countries enables users to rate specific datasets.
Candidate	**Albania** and **Ukraine** enable users to provide general feedback on the portal.	**Albania**, **Serbia** and **Ukraine** enable users to comment on specific datasets. **Albania** is the latest country to report this.	**Ukraine** enables users to rate datasets.

(Questions PT8, PT9 and PT10)

Most countries offer a public contact point on their open data websites, enabling users to directly reach out to the open data team with specific questions, ensuring user privacy in their inquiries. In addition, some countries support public discussion boards, on which users can post comments and view issues or insights shared by others, fostering a spillover effect that enhances community knowledge. These boards allow users to ask questions or provide feedback on the portal as a whole or on individual datasets. Some systems also incorporate a rating feature, whereby users can evaluate datasets using a star or voting system, helping improve data quality and relevance. In **Norway**, users can publicly comment on all the resources available on the portal. If they do not want their feedback published online, users can also directly email the open data team.

Highlight from Sweden – enabling users to directly contact data providers

In **Sweden**, each dataset on the national portal includes a dedicated section where users can discuss the data and ask questions. Additionally, every dataset features a feedback button that allows users to contact the publishing organisation for inquiries, feedback and requests regarding the information on this page. Users can also directly contact the dataset owner through the contact information provided on each data page.

High-value datasets

The reuse of HVDs offers significant benefits to society, the environment and the economy. Promoting these datasets on the portal can help boost the visibility and reuse of these datasets. Table 5 presents an overview of how countries responded to the question on this topic.

Table 5: Countries' responses to the question on HVDs

	Do you promote HVDs on your national portal?
EU-27	20 Member States (70 %) report actively promoting HVDs on their national portals.

(Question PT22)

Non-EU countries were not surveyed on this question, since Commission Implementing Regulation (EU) 2023/138 on HVDs applies only to EU Member States.

Common approaches to promoting HVDs on the national portal include incorporating filtering options to help users easily locate these datasets or using editorial tools such as labels or tags to promote their visibility and encourage reuse. Several countries have also created dedicated sections within their portals to inform users about HVDs and their significance.

For example, **Poland**'s open data portal promotes various types of HVDs, which are graphically marked so that users can filter them. The portal also features a special section focused on HVDs, offering an overview of their characteristics and updates on relevant policy developments. Similarly, **France** employs multiple strategies to highlight high-value data. A dedicated thematic page provides context, linking datasets to their practical applications, and a tagging system facilitates easy filtering. The French portal also includes a progress tracking dashboard, allowing users to monitor the release of public data, including ministerial commitments and HVDs.

Requesting datasets and providing transparency

Users may seek datasets that are not available on the national portal. In this case, it is valuable if they can request specific datasets, such as through a 'request data' button. These requests and their progress status should be presented transparently. Table 6 presents an overview of how countries responded to the questions on this topic.

Table 6: Countries' responses to questions on requesting datasets and providing transparency

	Does the national portal enable users to request datasets?	*Are requests for datasets and their progress status presented in a transparent manner on the national portal?*	*Does the team monitor the extent to which requests result in the publication of the requested data?*
EU-27	22 Member States (81 %) provide the possibility for users to request datasets. This number has decreased by one country, **Serbia,** since 2023.	Like in 2023, 18 Member States (67 %) report that they display the progress of requests on their national portals.	23 Member States (85 %) report that they monitor the results of requests. This number has decreased by one country, **Germany**, since 2023.

	Does the national portal enable users to request datasets?	*Are requests for datasets and their progress status presented in a transparent manner on the national portal?*	*Does the team monitor the extent to which requests result in the publication of the requested data?*
EFTA	Like in 2023, **Norway** reports that it provides the possibility for users to request datasets.	Like in 2023, **Norway** reports that it displays requests on its national portal.	Like in 2023, **Norway** reports that it monitors the status of requests.
Candidate	**Albania**, **Serbia** and **Ukraine** provide the possibility for users to request datasets. **Albania** newly reported enabling this.	**Ukraine** reports that it displays requests on its national portal.	**Serbia** and **Ukraine** report that they monitor the status of requests.

(Questions PT13, PT14 and PT15)

The open data team is often in charge of periodically assessing requests for datasets, tracking them and replying to them. In some countries, this is an automated process whereby requests are sent through standardised forms and dashboards. In other countries, users request datasets via email and the open data team needs to assess the questions manually.

Highlight from Spain – interacting with users

In **Spain**, users can submit requests for data that is not currently available in the catalogue through a user-friendly, dedicated form. These requests are automatically routed to the appropriate public bodies, which evaluate whether the requested data can be published or incorporated into their open data initiatives and future roadmaps.

Users also have the option to support existing requests by clicking the 'join the request' button displayed alongside each dataset request. This collaborative feature encourages a sense of community among users with similar data needs, potentially increasing the priority of popular requests. All requests are managed transparently in the data availability section, where users can follow each request's journey through various status stages: received, assigned, under study, programmed, published and the final outcome, which indicates if the data was released or provides an explanation if it was declined. This section also provides historical tracking.

Over the past year, Spain has actively responded to user data demands, fulfilling 31 new data requests. This approach not only enhances the responsiveness of public data services but also fosters a more engaged and data-driven citizenry.

Actively involving users

Users can be a source of citizen-generated data, including open data that they have processed into new forms. This can help national portals increase the variety of available data and enhance the community's engagement. When new datasets, whether from official or non-official sources, are published, national portals could notify users to enhance the reach of open data. Table 7 presents an overview of how countries responded to the questions on this topic.

Table 7: Countries' responses to questions on actively involving users

	Does the national portal provide the functionality for users to contribute datasets that they have produced or enriched?	*Does the national portal offer the possibility for users to receive notifications when new datasets are available on the national portal?*
EU-27	18 Member States (67 %) report that they enable users to actively publish datasets on the national portal. There has been a sharp decrease in the number of countries that allow users to publish datasets. Unlike in 2023, **Czechia**, **Greece**, **Croatia**, **Italy**, **Malta**, **Romania** and **Slovenia** no longer report offering this feature.	20 Member States (74 %) report that they notify users when new datasets are available.
EFTA	**Norway** reports that it enables users to publish datasets on the national portal. Unlike in 2023, **Iceland** and **Switzerland** no longer report implementing this feature.	**Norway** and **Switzerland** report that they notify users when new datasets are available.
Candidate	**Albania**, **Serbia** and **Ukraine** report that they enable users to publish datasets.	**Serbia** and **Ukraine** report offering notifications on new content being published, with **Serbia** the newest addition to this group.

(Questions PT7 and PT12)

This year, there has been a noticeable decline in the number of users permitted to publish data on national open data portals. Many portals now restrict data publishing rights exclusively to official data providers, limiting contributions from citizens and other independent actors. Conversely, countries are enhancing user engagement by introducing more proactive notification systems, allowing users to be promptly informed whenever a new dataset is published.

In **Sweden**, any user who has created a dataset can publish it on the national portal, along with supporting materials such as documentation or test cases. This is done through the 'admin' tool, which is accessible after logging in. In **Latvia**, users can subscribe to a newsletter to receive notifications when new datasets are uploaded. Meanwhile, in **Portugal**, users can opt to be notified about specific dataset activities by clicking the star button. Notifications are then sent via email and directly to the user's administration area on the portal.

Enhancing the open data culture

To further engage users, national data portals often provide functionality that enables reusers and data providers to interact. At the same time, many national portals provide a space to find information, events and news on relevant open data topics in the country. These features enhance the open data culture by allowing interaction between users and updating them on the ongoing trends in the field. Table 8 presents an overview of how countries responded to the questions on this topic.

Table 8: Countries' responses to questions on enhancing the open data culture

	Does the national portal enable users to find information and news on relevant open data topics in the country?	*Does the national portal offer a mechanism through which users can undertake exchanges with others?*
EU-27	22 Member States (81 %) report publishing information on open data topics in the country.	19 Member States (70 %) report providing a space for dialogue on their national portal, such as a discussion forum. This number has decreased by one country since 2023.
EFTA	**Norway** and **Switzerland** report publishing information on open data topics in the country.	**Norway** reports offering a mechanism for users to exchange information with other users.
Candidate	**Serbia** and **Ukraine** report updating users on open data topics.	**Serbia** and **Ukraine** report enabling users to interact with each other on the national portal.

(Questions PT11 and PT16)

Most countries publish information and updates on open data topics through their national portals. **Lithuania**, for instance, has a dedicated blog page for the latest news. **Ireland** has a news section on its portal and distributes a newsletter.

In terms of dialogue functionality, **Austria**, for example, uses the GitHub platform to facilitate public discussions. Questions are directed to the national open data team, who respond accordingly. By categorising issues based on specific portal components, it becomes easier for other users to search for and participate in relevant discussions. This public format also allows data publishers directly affected by the query to respond to the user. In some cases, countries have decided not to provide this feature. For example, **Finland** has removed the discussion board from its national open data portal due to low usage and significant security concerns. The forum was frequently flooded with fake accounts posting spam and advertisements, requiring extensive manual moderation. Previously, moderation support was provided by Disqus, which could automatically block spam and bots; however, due to EU data protection regulations, Disqus is no longer a viable option, since it is headquartered in the United States and does not comply with EU privacy standards. A thorough evaluation of other open-source solutions revealed similar vulnerabilities that did not meet the Finnish Digital Agency's security policies. As a result, Finland does not plan to reintroduce the discussion board feature in the near future.

Providing examples of open data reuse

Making open data available for reuse is one of the primary purposes of open data portals. Showcasing reuse examples is one way to inspire reusers and stimulate the uptake of open data. Countries may provide the possibility for users to submit their own reuse examples as a way to enrich the showcase on the national portal and give the open data team a better overview of what their datasets are being reused for and how. Table 9 presents an overview of how countries responded to the questions on this topic.

Table 9: Countries' responses to questions on showcasing open data reuse examples

	Does the national portal showcase reuse examples, such as in a designated section of the portal?	*Does the national portal reference the datasets that the showcased reuse examples are based on?*	*Does the national portal provide the possibility for users to submit their own reuse cases?*
EU-27	25 Member States (93 %) report highlighting reuse cases in a designated section of their portals. **Sweden** newly reported doing this.	21 Member States (78 %) report linking reuse cases to the underlying datasets.	21 Member States (78 %) report enabling users to submit their own reuse cases.
EFTA	**Norway** and **Switzerland** report highlighting reuse cases in a designated section of their portals.	**Norway** and **Switzerland** report linking reuse cases to the underlying datasets.	**Norway** and **Switzerland** report enabling users to submit their own reuse cases.
Candidate	**Serbia** and **Ukraine** report highlighting reuse cases in a designated section of their portals.	**Serbia** and **Ukraine** report linking reuse cases to the underlying datasets.	**Serbia** and **Ukraine** report enabling users to submit their own reuse cases.

(Questions PT17, PT18 and PT19)

Most countries showcase reuse examples on their portal (this topic is investigated in more detail in Chapter 4 of this report). For instance, the **Italian** national open data portal tags use cases, enabling users to search for them easily. Additional tags may be applied if the use case is linked to specific events, news articles, data stories or webinars. In **Switzerland**, each reuse case includes a dedicated 'datasets in showcase' section, allowing users to find the referenced datasets used by the reuse case.

5.3. Portal usage

This indicator evaluates whether portal administrators frequently assess the alignment of the portal's design, features and available data with user needs. Although direct feedback from users is useful, it can often be anecdotal. Therefore, this indicator also explores whether systematic monitoring of portal usage is employed to gain a broader insight into user behaviour. Specifically, it looks into whether data on the number of unique visitors, common user profiles, the most accessed datasets, preferred data categories and traffic generated through the portal's APIs is collected and analysed.

User analytics

It is important that countries are aware of the usage of portals to better direct their efforts to increase the supply and reuse of open data. These questions aim to understand whether countries monitor the portal's traffic. Moreover, countries can also perform other activities to better understand the behaviour and needs of users of their portals, such as web analytics, surveys and analysis of social media feeds. Table 10 presents an overview of how countries responded to the questions on this topic.

Table 10: Countries' responses to questions on user analytics

	Do you monitor the portal's traffic?	*Besides monitoring portal traffic, do you perform any further activities to better understand the behaviour and needs of users of your portal?*
EU-27	All 27 Member States report that they monitor the portal's traffic. This number has decreased by one country, **Czechia**, since 2023.	23 Member States (85 %) report that they conduct other activities to understand users' needs.
EFTA	All participating EFTA countries report that they monitor the portal's traffic.	All participating EFTA countries report that they conduct other activities to understand users' needs.
Candidate	All participating candidate countries report that they monitor the portal's traffic.	**Serbia** and **Ukraine** report that they conduct other activities to understand users' needs.

(Questions PT23 and PT25)

Countries use various analytics tools to monitor the popularity of datasets and gain insights into how to improve the quality of the datasets. The most popular tools include Matomo Web Analytics, Google Analytics and Piwik PRO.

Furthermore, social media platforms are widely used to monitor user behaviour, and many countries use surveys and interviews to gather direct feedback from users. **Norway**, for instance, uses a dual approach: first, it uses Monsido for analytics to track portal usage; it then conducts surveys to validate its hypotheses and identify ways to enhance the website based on user needs. **Iceland**, on the other hand, analyses communications from users who contact the open data team. By examining the reasons for contact and compiling statistics on common issues, they can assess whether improvements are necessary.

Enhancing the performance of national portals

Assessing user analytics for insights and following these up with concrete improvements can allow national portals to serve their users better. Similarly, national portals undertake activities to promote the portal and attract new users or new audiences to enhance the impact of open data. Table 11 presents an overview of how countries responded to the questions on this topic.

Table 11: Countries' responses to questions on enhancing the performance of national portals

	Do you use the insights about portal usage and about the behaviour and needs of portal users to improve the portal accordingly?	*Do you undertake any activities to promote the portal and attract new users or new audiences?*
EU-27	24 Member States (89 %) report using insights from users to keep improving the portal.	25 Member States (93 %) report conducting activities to promote and attract new users.
EFTA	**Norway** and **Switzerland** report using user insights to keep improving the portal.	**Norway** and **Switzerland** report conducting activities to promote and attract new users.
Candidate	All candidate countries, **except Bosnia and Herzegovina**, report using user insights to keep improving the portal.	All candidate countries, **except Bosnia and Herzegovina**, report conducting activities to promote and attract new users.

(Questions PT26 and PT27)

User input is essential for identifying current needs and prioritising improvements to enhance national portal performance. In **Denmark**, for example, feedback from users is used to guide developers on which features to implement. Most improvements focus on enhancing metadata and onboarding new authorities based on the demand for specific data. Recently, they introduced the display of data services, a highly requested feature by advanced users. They also added roles like 'Originator' (Ophavsmand) to provide clearer attribution for datasets. In **Luxembourg**, user feedback revealed that outdated datasets were receiving more views than newer, up-to-date ones on the same topics. To address this, documentation for older datasets was updated to redirect users to the latest versions.

Countries take diverse approaches to promoting open data. **Serbia**, for instance, launched a regional open data challenge, requiring participants to use at least one public open dataset to participate. **Slovakia** offers open and free training sessions to attract new users. **Slovenia** organises hackathons, university lectures and events for businesses and the public sector. Similarly, **Romania** promotes its open data portal through webinars, public meetings with academia and the private sector, student-focused information sessions and presentations at relevant events such as the National Committee on e-Government and Red-tape Reduction.

Highlight from Sweden – improving the data portal through user experience

Sweden adopted an innovative, user-centred approach to redesigning its national data portal, collaborating with web consultants who specialise in user experience to ensure that the platform meets the needs of diverse users. This conceptual redesign focused on user-driven design principles, incorporating iterative testing and continuous feedback to enhance both functionality and user satisfaction. In March 2024, Sweden launched the new data portal, featuring a range of significant improvements designed to streamline access and boost usability. Key enhancements include the following.

- **User-friendly design and structure.** A cohesive and consistent design refresh was implemented, making navigation intuitive and visually clear, thereby enhancing the overall user experience.

Highlight from Sweden – improving the data portal through user experience
• **Support and tools section.** This section offers users advanced filtering options, helping them to locate data more efficiently and customise search criteria according to their specific needs. • **Good examples showcase.** Users can now apply to share their successful data reuse cases, highlighting practical examples of data-driven solutions and fostering a sense of community and knowledge exchange. • **Data collaboration hub.** This dedicated area showcases national initiatives and collaborations aimed at positioning data as a strategic resource, encouraging collective efforts and highlighting innovative data reuse. • **Educational resources page.** An easily accessible resource section provides users with educational materials and guides related to data, promoting data literacy and supporting users in developing their data-related skills. • **'Why share data?' section.** This page outlines the benefits of data sharing, relevant regulations and best practices, providing a comprehensive view of how sharing data can drive innovation and transparency. • **Results and follow-ups section.** This page displays key metrics, including metadata quality assessments across various data catalogues, reinforcing the platform's commitment to data quality and continuous improvement. Through this user-focused redevelopment, Sweden's data portal not only enhances accessibility but also supports users in exploring, using and contributing to the nation's data resources, ultimately advancing the strategic use of data as a public asset.

Most popular data domains

Analytics on what users prefer can improve the usability and utility of the portal. This involves monitoring what keywords are used to search for data and content on the portal, as well as monitoring the most and least consulted pages. Similarly, national portals take measures to optimise the search and discoverability of content. Table 12 presents an overview of how countries responded to the questions on this topic.

Table 12: Countries' responses to questions on the most popular data domains

	Do you monitor what keywords are used to search for data and content on the portal?	*Do you take measures to optimise the search and discoverability of content?*
EU-27	24 Member States (88 %) report that they monitor the keywords used in the portal and the most and least consulted pages.	All Member States (100 %) report optimising the discoverability of datasets. This number has decreased by one country, **Croatia**, since 2023.
EFTA	All participating EFTA countries, **except Iceland**, report that they monitor the keywords used in the portal and the most and least consulted pages.	All participating EFTA countries report that they implement measures to improve the discoverability of content.
Candidate	**Serbia** and **Ukraine** report that they monitor the keywords used in the portal and the most and least consulted pages.	**Albania**, **Serbia** and **Ukraine** report that they implement measures to improve the discoverability of content.

	Do you monitor what keywords are used to search for data and content on the portal?	*Do you take measures to optimise the search and discoverability of content?*
	This number has decreased by one country, **Albania**, since 2023.	

(Questions PT28 and PT30)

Monitoring the keywords used in data portal searches can offer insights into user interests and navigation patterns. In **Austria**, this monitoring is enhanced by artificial intelligence models, which provide data for a comprehensive dashboard. **France** takes a similar approach, tracking the most viewed pages and popular new content. A daily top 10 list is shared within the team to identify trending topics that may warrant further development, such as writing dedicated articles or highlighting specific datasets. This also helps to determine when data exploration is needed. For example, certain datasets are popular because users seek information rather than raw data, guiding decisions on whether to redirect users to different datasets or create tailored data exploration tools.

To improve searches and content discoverability, **Finland** has upgraded its portal's search engine, with better support for both Finnish and Swedish users. Additionally, the national DCAT-AP extension requires a set of mandatory, optional and recommended attributes, further enhancing data findability.

Application programming interfaces

APIs allow reusers to programmatically access metadata and thereby to automatically execute searches and process data. National portals can run analytics on this API usage in the same way as they do for regular portal traffic. Moreover, metadata on the portal can be made available in clear, plain language to enable both humans and machines to read and understand it. Table 13 presents an overview of how countries responded to the questions on this topic.

Table 13: Countries' responses to questions on APIs

	Do you run analytics on API usage?	*Is the metadata on your portal available in clear, plain language to enable both humans and machines to read and understand it?*
EU-27	17 Member States (63 %) report analysing API usage.	All Member States (100 %) have metadata that is written in language that is understandable to humans and machines, like in 2023.
EFTA	**Iceland** reports analysing API usage.	All participating EFTA countries report providing human-readable metadata.
Candidate	**Albania**, **Serbia** and **Ukraine** report analysing API usage.	**Albania**, **Serbia** and **Ukraine** report providing human-readable metadata.

(Questions PT24 and PT31)

APIs allow different software systems to communicate and exchange data. For instance, a government portal might have APIs that let external developers access public data or integrate services. Analytics on API usage involve collecting data on various aspects of API usage, such as how often the API is being accessed, which services or systems are using the API, the performance of the API (response time and error rates) and patterns in API calls over time (e.g. peak usage hours). In **Cyprus**, Matomo is employed to analyse API usage, providing insights into the popularity of specific APIs, such as the page titles and uniform resource locators (URLs) being accessed. Additionally, it gathers detailed information about reusers, including their internet protocol (IP) address; the request date, time and location; and device specifics like operating system, model, browser and screen resolution. The report also captures the unique visitor identification, along with the timing and frequency of all visits made by each user.

The majority of countries provide metadata in forms for both humans and machines to read and understand, like in **Germany**, where the metadata is human-readable and is accompanied by a link to a machine-readable resource description framework (RDF) file.

5.4. Data provision

This indicator measures the level of contributions from data providers to national portals and the initiatives implemented to encourage their participation, including the connections between national and regional/local portals. It also explores how open data portals help users find citizen-generated data and data that cannot be publicly shared. Finally, it evaluates how effectively the national portal's infrastructure allows access to real-time and dynamic data.

Official data providers

Public sector bodies are the primary suppliers of open data. Therefore, it is interesting to assess to what degree public sector data providers contribute data to the national portal. In addition to open data, national portals can also show users if data exists that cannot be made available as open data. A feature like this can help reduce freedom-of-information requests for data that cannot be opened. Table 14 presents an overview of how countries responded to the questions on this topic.

Table 14: Countries' responses to questions on official data providers

	To what degree do public sector data providers contribute data to the portal?	*Does the national portal allow users to see if data exists that cannot be made available as open data?*
EU-27	22 Member States (81 %) report that all or the majority of public sector providers supply data to the national portal.	19 Member States (70 %) report that they show users if data exists that cannot be made available as open data. **Germany**, **Croatia** and **Latvia** newly report this.
EFTA	**Norway** and **Switzerland** assess that approximately half of data providers supply data to the portal. **Iceland** reports that only public sector bodies supply data to the national portal.	All the participating EFTA countries report that they show users if data exists that cannot be made available as open data.
Candidate	**Ukraine** reports that all public sector providers supply data to the national portal. **Albania** and **Serbia** assess that	None of the participating candidate countries report showing users if data exists that cannot be made available as open data.

	To what degree do public sector data providers contribute data to the portal?	*Does the national portal allow users to see if data exists that cannot be made available as open data?*
	approximately half of data providers supply data to the portal.	

(Questions PT32 and PT40)

In general, official data providers make data available on the central portal. This is achieved through ongoing efforts by national portal teams. For example, in the **Netherlands**, public sector data providers are generally proactive in publishing their datasets on the national data portal. Most organisations automatically synchronise their internal catalogues with the portal. However, ongoing relationship management is essential to ensure data owners consistently upload their datasets. In **Czechia**, the legislation mandates that all open data must be registered in the national open data portal. As a result, the portal includes datasets from central, regional and local providers, who directly register their data. After initial registration, the portal can automatically harvest updates and new information.

Some countries also publish lists of data that exist but are not available as open data. In **Italy**, for example, the national data portal features a specific section for public administration databases that are not available as open data. Additionally, the portal is linked to the catalogue for spatial data, which contains both open and restricted datasets. For open data, the corresponding metadata is also made accessible via the dati.gov.it portal, using the DCAT-AP standard for geographical metadata.

Non-official data providers

Some countries also allow non-official providers to contribute data to the portal, such as community-sourced / citizen-generated data. Table 15 presents an overview of how countries responded to the question on this topic.

Table 15: Countries' responses to the question on non-official data providers

	Does the national portal provide a way for non-official data to be published?
EU-27	17 Member States (62 %) report allowing the publication of non-official data on their portal. **Czechia**, **Germany**, **Ireland**, **Croatia**, **Slovakia** and **Sweden** newly report this.
EFTA	None of the EFTA countries report allowing the publication of data from non-official providers on the national portal.
Candidate	**Serbia** and **Ukraine** report allowing the publication of non-official data on their portal. This number has increased by one country, **Ukraine**, since 2023.

(Question PT39)

Often, national portals publish non-official datasets in the same catalogue as official datasets and use tags to indicate when datasets stem from non-official sources. For example, in **Croatia**, any user can apply to publish data through the national portal by submitting a designated form. Similarly, **Estonia** has no distinction between official and non-official data; instead, the focus is on the organisation or

individual publishing the data. In **France**, publishers are identified with a specific label to distinguish official from non-official sources.

Assistance for data providers

By identifying data providers who have not yet published data on the national portal and taking concrete actions to assist them, national portals can increase the supply of open data. Table 16 presents an overview of how countries responded to the questions on this topic.

Table 16: Countries' responses to questions on assistance for data providers

	Do you identify the data providers that are not yet publishing data on the national portal?	*Were there concrete actions taken to assist these data providers with their publication process?*
EU-27	All Member States (100 %) report that they identify the data providers not yet publishing data on the national portal.	26 Member States (96 %), **all except Lithuania**, report that they take concrete actions to assist these data providers with their publication process.
EFTA	All participating EFTA countries report that they identify the data providers not yet publishing data on the national portal.	All participating EFTA countries report that they take concrete actions to assist these data providers with their publication process.
Candidate	All candidate countries, **except Bosnia and Herzegovina**, report that they identify the data providers not yet publishing data on the national portal.	All participating candidate countries, **except Bosnia and Herzegovina**, report that they take concrete actions to assist these data providers with their publication process.

(Questions PT33 and PT34)

Countries support data providers in publishing datasets on national portals through various methods, including by providing general guidelines, online tutorials and frequently-asked-questions pages or organising ad hoc meetings. In **Portugal**, for example, tutorials on registration, publication and reuse are available, and organisations receive direct assistance for more complex inquiries. In **Albania**, new publishers can email their data for manual insertion by the open data team, which handles publication on the portal. Technical support is provided for automatic publication through electronic systems.

Regional and local data sources

National portals primarily focus on data provided by national-level sources. However, regional and local datasets can offer detailed, context-specific insights on a range of subjects. Making these regional and local datasets accessible through national portals can promote their discovery and broader reuse. Table 17 presents an overview of how countries responded to the questions on this topic.

Table 17: Countries' responses to questions on regional and local datasets

	Besides the national open data portal, are there other regional and local portals?	*Are regional and local portals and their data sources discoverable via the national portal?*	*To what degree are regional and local sources harvested automatically?*
EU-27	24 Member States (88 %) report that there are other regional and local portals besides the national open data portal.	22 countries (81 %) report that regional and local sources are discoverable via the national portal.	17 Member States (63 %) report that all or the majority of regional and local datasets are harvested automatically. 5 Member States (19 %) indicated that this question was not applicable, mainly because there are no regional bodies given the size of their countries.
EFTA	All participating EFTA countries report that regional and local portals exist in their country. **Iceland** newly reports this.	All participating EFTA countries report that regional and local sources are discoverable via the national portal. **Iceland** newly reports this.	**Norway** reports that all regional and local datasets are harvested automatically. For **Switzerland**, this is true of the majority of datasets. **Iceland** reports that none of the regional and local datasets are automatically harvested.
Candidate	All participating candidate countries report that regional and local portals exist in their country.	**Serbia** and **Ukraine** report that regional and local sources are discoverable via the national portal.	**Ukraine** reports that all regional and local datasets are harvested automatically. For **Sebia**, this is true of the majority of datasets.

(Questions PT35, PT36 and PT37)

A national open data portal can play a crucial role in promoting open data across the country. These portals often serve as a comprehensive one-stop shop, and most countries make regional and local data discoverable through their national portals. For example, in **Germany**, datasets from various regions are accessible through the main portal and can be easily filtered for specific locations. Some countries, such as **Luxembourg** and **Malta**, do not have regional data portals, mainly due to the smaller size of the country and the fact that there are no regions.

In many cases, datasets from smaller regional and local portals are automatically harvested after agreements are made with local authorities. For example, in **Spain** in 2024:

- 20 regional initiatives contributed 42 % of the total data in the national catalogue, with 99 % of these datasets being automatically harvested;
- 102 local initiatives contributed 17 % of the total data, also with 99 % of the datasets harvested automatically.

However, in some cases, like in **Denmark**, automatic harvesting is not implemented due to time and resource constraints on both sides, making it difficult to align data models and agree on certain technical specifications.

Access to real-time and dynamic data

Dynamic data is information that evolves over time and is updated periodically as fresh data points are collected, like weekly reports on unemployment figures. In contrast, real-time data involves continuous updates at short intervals, with examples including air quality readings, live weather reports and transportation or traffic details. This type of data plays a crucial role in various applications, such as traffic-optimised navigation systems or economic forecasting models. Table 18 presents an overview of how countries responded to the question on this topic.

Table 18: Countries' responses to the question on real-time and dynamic data

	Does the national portal include datasets of real-time or dynamic data?
EU-27	24 Member States (89 %) report that they offer real-time or dynamic data on their portal. **Malta** newly reports this.
EFTA	All participating EFTA countries offer real-time or dynamic data on their portal.
Candidate	All participating candidate countries, **except Bosnia and Herzegovina**, report offering real-time or dynamic data on their portal.

(Question PT38)

Most countries have real-time or dynamic data on their national portals. In **France**, for example, one of the most successful applications of real-time data has been in the transportation sector. The portal transport.data.gouv.fr showcases reuse examples based on real-time transport data. The task force behind the portal has undertaken substantial efforts to promote real-time data use, offering documentation on standardisation, maintaining an inventory of real-time data that still needs to be standardised and fostering dialogue with stakeholders to advance adoption.

Similarly, in **Lithuania**, real-time road traffic and weather conditions data is accessible through the local infrastructure portal eismoinfo.lt. This data is searchable and downloadable from the national data portal's metadata catalogue at data.gov.lt, which provides a source URL for traffic intensity information. The data is dynamically updated as it is registered in the primary database and is presented to citizens through a user-friendly application, enhancing accessibility and engagement.

5.5. Portal sustainability

This indicator investigates the strategies and procedures established to maintain the long-term sustainability of national portals. It encompasses initiatives aimed at increasing the visibility of these portals, efforts to gauge user satisfaction and incorporate their feedback, and mechanisms for monitoring and enhancing the performance of the national portal.

Strategy and visibility

A key step in ensuring the long-term sustainability of national portals is developing a strategy or action plan that outlines the activities and mechanisms needed for continued operation. These plans often focus on securing funding, maintaining key personnel, fostering public engagement and ensuring that the portal meets the needs of its core audience. Table 19 presents an overview of how countries responded to the questions on this topic.

Table 19: Countries' responses to questions on strategy and visibility

	Does the national portal have a strategy to ensure its sustainability?	*Is your national portal active on social media?*
EU-27	22 Member States (81 %) report that the national portal has a strategy to ensure its sustainability.	21 Member States (78 %) are active on social media to increase the visibility of the portal. **Germany** and the **Netherlands** did not report doing this, a change from the previous year.
EFTA	**Norway** and **Switzerland** report that the national portal has a strategy to ensure its sustainability.	All participating EFTA countries are active on social media.
Candidate	All participating candidate countries, **except Bosnia and Herzegovina**, report having a strategy to ensure the portal's sustainability. **Albania** newly reports this.	All participating candidate countries, **except Bosnia and Herzegovina**, report being active on social media.

(Questions PT41 and PT42)

In many countries, the national portal serves as a cornerstone of the national open data policy or strategy. In **Ukraine**, for example, the Ministry of Digital Transformation has taken steps to ensure the portal's sustainability by preparing a technical task and a technical and economic justification for its modernisation. Key documents include the results of the portal audit, technical task and technical and economic justification. Additionally, Ukraine's draft *Strategy for the development of the open data sphere for 2025–2027* sets out an operational action plan for each strategic goal. It outlines specific measures, expected results, deadlines and responsible actors. One of the key strategic goals is the enhancement of the accessibility and capabilities of the unified state web portal of open data.

Furthermore, the majority of countries are available on social media. X, Facebook and LinkedIn are the most used social media platforms. These channels are used to boost the public's awareness of open data and directly interact with users and data enthusiasts.

Availability of documents to the public

National portals can make their portal's source code and relevant documentation and artefacts available to the public (e.g. on platforms such as GitHub or GitLab) to foster transparency and promote open-source initiatives. Table 20 presents an overview of how countries responded to the question on this topic.

Table 20: Countries' responses to the question on the public availability of documents

	Are the portal's source code and relevant documentation and artefacts made available to the public?
EU-27	Like in 2023, 25 Member States (93 %) report publicly sharing the portal's source code and relevant documentation.
EFTA	All participating EFTA countries report publicly sharing the portal's source code and relevant documentation.
Candidate	**Bosnia and Herzegovina** and **Serbia** report publicly sharing the portal's source code and relevant documentation.

(Questions PT43)

The great majority of the countries interviewed report that they provide such documents on GitHub. For instance, **Belgium** makes them available for back-end tools on GitHub, while the web content management system front end relies on the Drupal distribution OpenFed.

Monitoring performance

To track progress and plan improvements, national portals can assess various characteristics of the data published on their portals, such as the number of datasets available, their distribution across categories, the presence of real-time data and how these aspects have evolved over time. Additionally, performance and usage reports can provide valuable evidence to support continued initiatives and justify investments. Table 21 presents an overview of how countries responded to the questions on this topic.

Table 21: Countries' responses to questions on monitoring performance

	Do you monitor the characteristics of the data published on the portal, such as the distribution across categories, static versus real-time data, and how these change over time?	*Does this monitoring enable the portal team and/or data providers to take action to improve their performance on the national portal?*
EU-27	25 Member States (93 %) report that they monitor the characteristics of the data published on the portal. **Denmark**, **Latvia** and **Slovakia** newly report this, and **Germany** no longer reports doing this in 2024, a change from the previous year.	25 Member States (93 %) report that this monitoring enables the portal team and/or data providers to take action to improve their performance on the national portal.

	Do you monitor the characteristics of the data published on the portal, such as the distribution across categories, static versus real-time data, and how these change over time?	*Does this monitoring enable the portal team and/or data providers to take action to improve their performance on the national portal?*
EFTA	**Norway** reports that it monitors the characteristics of the data published on the portal.	**Norway** responded this monitoring enables the portal team to take action to improve their performance on the national portal.
Candidate	All participating candidate countries, **except Bosnia and Herzegovina**, report that they monitor the characteristics of the data published on the portal. **Albania** newly reports this.	All candidate countries, **except Bosnia and Herzegovina**, report that this monitoring enables the portal team and/or data providers to take action to improve their performance on the national portal.

(Questions PT44 and PT45)

The majority of countries have implemented a monitoring framework to continuously improve the portal. This particularly involves monitoring metadata, such as analysing both summary and specific statistics on metadata to track any missing DCAT-AP attributes across datasets. In **Sweden**, for example, the statistics at a glance section includes information on the number of organisations publishing data, those with the most published datasets and the five most common data categories.

Many countries also analyse performance metrics to further enhance portal usability. In **Serbia**, for example, monitoring covers aspects such as data formats, quality, description and update frequency. This information is shared with data providers, along with recommendations for improvement. In **Czechia**, dashboards tracking the quality of data and metadata are accessible to the national team and data providers. The team monitors these dashboards regularly, addresses irregularities with providers – especially members of the Open Data Working Group – and encourages improvements. Performance results from major providers are also published annually in the *Annual Report of the State of Open Data* in an easy-to-understand format.

Highlight from Lithuania – monitoring dashboard

Lithuania provides an example of how the characteristics of the data published on the portal, such as the distribution across categories and static versus real-time data, can be monitored over time (Figure 3).

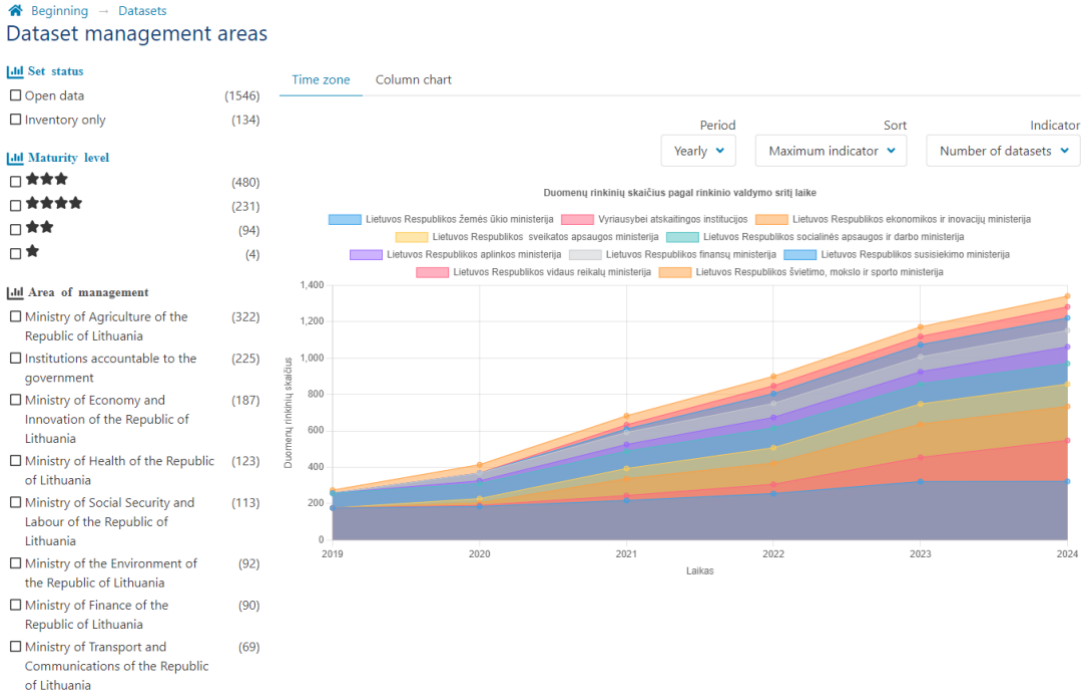

Figure 3: Lithuania's open data monitoring dashboard

5.6. Pilot indicator: automated tests of portal performance

Pilot indicator – automated tests

In addition to gathering qualitative information on portals, there are technical and quantitative methods to evaluate portals on objective metrics. Such tests can complement the insights derived from the questionnaire and extend the scope of the ODM report. As a pilot, four indicators (mobile friendliness, page speed, security and web accessibility) were measured for this year's report but did not contribute to countries' maturity score. These tests were conducted on the portal URLs listed in Table 2.

Mobile friendliness assesses how well a website adapts to mobile devices, ensuring a seamless user experience for visitors on smartphones and tablets. This indicator is operationalised through the Bing mobile friendliness tool. In summary:

- **94 %** of all portals are mobile friendly;
- **100 %** of all EU portals are mobile friendly;
- portals from **Albania** and **Iceland** were not evaluated as mobile friendly by this automated tool.

Page speed assesses a selection of speed and performance standards from Google's PageSpeed Insights. The results can be summarised as follows.

- Of all portals, **85 %** pass the **time to interactive** test. This test measures how long it takes a page to become fully interactive. Sites are considered fully interactive when (a) the page displays useful content, (b) event handlers are registered for the most visible page elements and (c) the page responds to user interactions within 50 milliseconds.
- Of all portals, **82 %** pass the **first contentful paint** test. This test measures the time from when the user first navigated to the page to when any part of the page's content is rendered on the screen. Sites should strive to have a first contentful paint of 1.8 seconds or less.
- Of all portals, **52 %** pass the **largest contentful paint** test. This test reports the render time of the largest image, text block, or video visible in the viewport, relative to when the user first navigated to the page. To provide a good user experience, sites should strive to have a largest contentful paint of 2.5 seconds or less.
- Of all portals, **33 %** pass the **cumulative layout shift** test. This test measures the biggest group of unexpected layout changes that happen on a web page while it is loading. To provide a good user experience, sites should strive to have a cumulative layout shift score of 0.1 or less.

Security assesses several complementary metrics related to basic cybersecurity hygiene using the publicly available security testing tool by the Dutch national government called internet.nl. The results can be summarised as follows.

- Of all portals, **15 %** pass the **modern address (IPv6)** test. This test evaluates if the website is reachable for visitors using a modern internet address (IPv6), making it fully part of the modern internet.
- Of all portals, **27 %** pass the **domain name system security extensions** test. This test evaluates if the website's domain is signed with a valid signature, which protects against manipulated translation from the domain into rogue internet addresses.
- Of all portals, **12 %** pass the **secure connection** test. This test evaluates if information in transit between the website and its visitors is protected against eavesdropping and tampering.
- Of all portals, **3 %** pass all three tests.

Web accessibility assesses the accessibility status of websites (including for individuals with disabilities) using the open-source Axe-core tool. The accessibility criteria are based on the web content accessibility guidelines (WCAGs). The results can be summarised as follows.

- Of all portals, **53 %** pass the **alternative text (WCAG 1.1.1)** test. This test evaluates whether the website offers text alternatives for non-text content, enabling it to be transformed into formats like large print, braille, speech, symbols or simplified language to meet diverse user needs.
- Of all portals, **47 %** pass the **colour contrast (WCAG 1.4.3)** test. This test evaluates if the visual presentation of text and images on the website has a contrast ratio of at least 4.5:1. Exceptions include cases of large text, text or images part of an inactive user interface component, and text that is part of a logo or brand name.
- Of all portals, **75 %** pass the **page/document title (WCAG 2.4.2)** test. This test evaluates if the website has titles that describe the topic or purpose.
- Of all portals, **50 %** pass the **link name (WCAG 2.4.4)** test. This test evaluates the clarity and accessibility of links on a website.
- Of all portals, **69 %** pass the **language attribute (WCAG 3.1.1)** test. This test evaluates if the primary language of each web page is specified in a way that can be identified by software, such as screen readers and search engines.
- Of all portals, **69 %** pass the **valid language code (WCAG 3.1.2)** test. This test evaluates if the language of each passage or phrase in the website's content can be identified and defined by software, allowing assistive technologies (e.g. screen readers) to accurately convey content in the appropriate language.
- Of all portals, **50 %** pass the **name, role, value (WCAG 4.1.2)** test. This test evaluates the accessibility and compatibility of user interface components of the website with assistive technologies.
- Of all portals, **22 %** pass all seven of the above tests.
- Of all EU portals, **27 %** pass all seven of the above tests.

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