

Portal

2025 **Open Data Maturity Report**





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Chapter 5: Open data portals

Open data portals are developed at the European, national and local levels to make open data easily accessible to anyone interested in using the data. These platforms often serve as central directories, helping users locate public data resources. Rather than simply storing datasets, many portals function as meta-catalogues, aggregating links to data hosted elsewhere to improve discoverability. Public sector organisations managing these portals often undertake a range of initiatives to promote the availability and reuse of public sector information. In this broader context, portals also play a role in raising awareness about open data and encouraging its use among a diverse range of user groups.

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 portals' 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	This indicator explores how national portals empower users through interactive features and technical capabilities. It assesses whether portals support programmatic access via application programming interfaces (APIs) or SPARQL, offer relevant documentation and enable dataset previews. It also considers user engagement tools such as feedback mechanisms, dataset requests, reuse case submissions and notifications. The presence of community features, transparency around data requests and promotion of high-value datasets (HVDs) are also taken into account.
Portal usage	This indicator assesses how well national portals monitor user activity and apply insights to improve usability. It looks at traffic analysis, API usage and efforts to understand user needs. It also considers whether search behaviour is tracked and if steps are taken to enhance discoverability and metadata clarity.
Data provision	This indicator assesses how well national portals support inclusive data publication. It looks at contributions from public sector providers and whether support is offered to those not yet publishing. It also considers the integration of regional and local data, the use of automatic harvesting and the availability of real-time and citizen-generated datasets. Lastly, it checks if the portal shows when data exists but cannot be shared.
Portal sustainability	To ensure long-term viability, this indicator looks at whether clear sustainability strategies are in place for national portals. It considers the availability of public documentation and open-source code and looks at social media presence. It also assesses whether portals monitor the characteristics of published data and use these insights to improve performance. The focus is on transparency, adaptability and the ability to maintain and develop the portal over time.

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 2025, the portal dimension is the second-best-performing dimension among the EU-27, achieving a maturity score of 85 % (Figure 1). While maturity on this dimension decreased by 3 percentage points (pp) between 2023 and 2024 – partially influenced by changes in the methodology – the maturity level has recovered in 2025, with a 4 pp increase in maturity between 2024 and 2025. The increased score on the portal dimension in 2025 can be attributed to increases in all four of the underlying indicators in this dimension, with the 'portal features' indicator showing the largest year-on-year increase in maturity (+ 5 pp).

Portal maturity score over time

EU-27, 2018-2025

- Portal dimension
- Portal features
- Data provisionPortal sustainability
- Portal usage

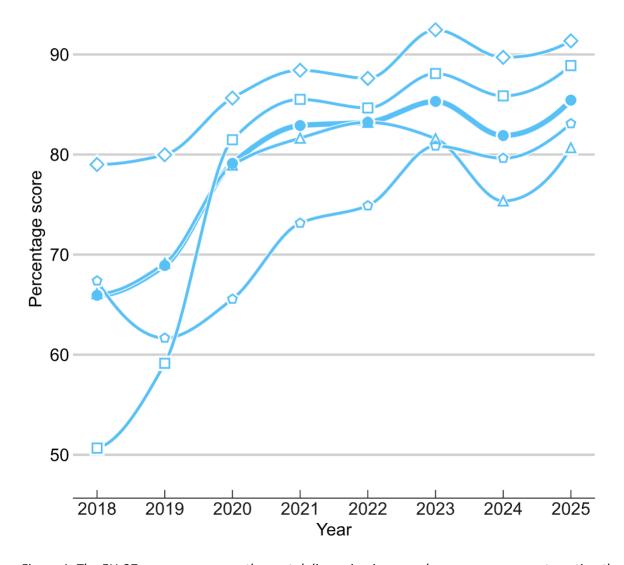


Figure 1: The EU-27 average score on the portal dimension increased year-on-year, counteracting the decrease observed in the previous annual cycle.

Regarding individual country performance, **France** now stands with **Poland** as the two participating countries to report conducting all of the activities assessed in the questionnaire, earning a 100 % maturity score on this dimension (Figure 2). **Lithuania** places third on this dimension, with a maturity score of 99 %, reflecting a 6 pp increase compared with 2024, which was driven by a substantial increase of 27 pp on the 'data provision' indicator. In Lithuania, the State Data Agency actively contacts institutions, coordinates data collection and prepares datasets for publication on the national open data portal. This approach helps to reduce the technical and administrative burden on individual institutions, particularly those with limited resources or expertise.

Highlight from Lithuania – continuous improvement through multichannel feedback

One of the key practices highlighted in this year's report is basing portal improvements on user feedback. **Lithuania**, for example, places a strong emphasis on continuous improvement of its national portal, actively incorporating feedback received via social media and direct contact. Recent developments include enhancements to the user interface, API functionality and task management tools for institutional coordinators. The portal team also uses <u>GitHub</u> to log issues and track potential improvements, applying a ticketing approach to manage updates transparently.

Read more about this trend in Section 5.3.

In total, 20 countries match or exceed the EU average of 85 %, including 13 with scores of 90 % or above. Among these are **Ukraine**, a candidate country scoring 94 %, and **Norway**, a European Free Trade Association (EFTA) country with a score of 92 %.

Highlight from Ukraine – supporting data providers in the publication process

One of the key practices highlighted in this year's report is providing support to data providers to facilitate the publication of high-quality datasets on national portals. **Ukraine** takes a structured approach to assisting public authorities in their data publication efforts, offering both technical and strategic guidance.

The Ministry of Digital Transformation plays a central role in coordinating open data activities and supporting data providers. As part of its efforts, the ministry has developed a comprehensive set of resources and tools to streamline the publication process and improve data quality.

- Technical documentation and guidance. Ukraine provides detailed instructions and templates to help data providers prepare and publish datasets in line with national standards. These materials cover metadata structuring, licensing and compliance with the Data Catalog Vocabulary Application Profile (DCAT-AP) standard, ensuring consistency across the portal.
- Monitoring and feedback mechanisms. The national portal includes features that allow for the tracking of dataset publication and reuse. Data providers receive feedback on the quality and completeness of their metadata, helping them to identify areas for improvement and align with best practices.
- Capacity building and coordination. Regular training sessions and workshops are organised to build the skills of data publishers. These events foster collaboration between institutions and promote a shared understanding of open data principles and technical requirements.

Ukraine's approach demonstrates how targeted support and clear guidance can empower data providers, enhance the quality of published data and strengthen the overall open data ecosystem.

Read more about this trend in Section 5.4.

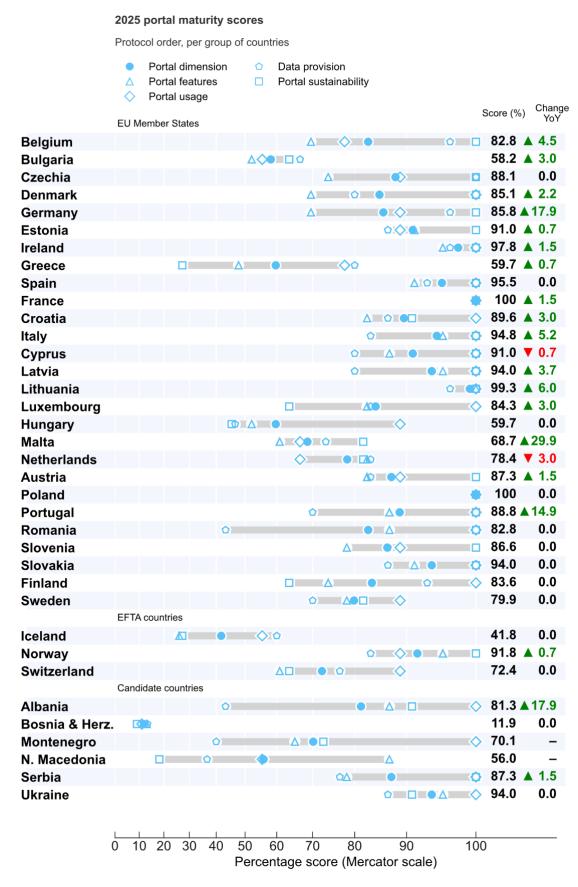


Figure 2: The majority of countries had either a stable or an increased score on the portal dimension in 2025.

NB: YoY, year-on-year.

Malta (+ 30 pp), Albania (+ 18 pp), Germany (+ 18 pp) and Portugal (+ 15 pp) achieved double-digit improvements in their maturity scores compared with 2024. Malta'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 sustainability' indicator (+ 45 pp), driven by the introduction of a sustainability strategy for its national portal, and on the 'portal features' indicator (+ 35 pp), where it enhanced its feedback mechanisms and user involvement to ensure relevant updates to the portal.

Germany's increased maturity is primarily driven by a significant rise in the 'portal sustainability' indicator (+ 55 pp). This resulted from the national portal's active presence on social media platforms such as <u>Mastodon</u> and <u>LinkedIn</u> and from the implementation of the GovData Monitor, which tracks data characteristics and informs daily improvements. These insights help identify structural issues across the portal ecosystem, including with harvesters and connected portals. Germany also saw progress on the 'portal features' indicator (+ 26 pp) following the introduction of a contact mechanism, a way to request datasets and the integration of open-data-related news into the portal.

Portugal's maturity gains stem mainly from an increase in the 'portal usage' indicator (+ 33 pp). This was driven by enhanced monitoring efforts, including expanded API analytics, tracking of user-entered search keywords and analysis of the most and least visited pages. These measures provide valuable insights into user behaviour and help guide improvements to the portal's structure and content.

For the second year in a row, **Albania** is among the major improvers in the portal dimension. It achieved significant progress on the 'portal features' (+ 35 pp) and 'portal usage' (+ 22 pp) indicators. Key improvements included the implementation of a rating system for datasets, the creation of a dedicated reuse section and analysis of user behaviour, not only through traffic monitoring but also through a user workshop and a user survey.

Highlight from Albania – comprehensive portal upgrade to enhance user experience

One of the practices highlighted in this year's report is the maturity gains that can be achieved through a comprehensive upgrade of the national open data portal. **Albania** exemplifies this approach through a large-scale revamp of its portal, aimed at improving usability, transparency and user engagement. The updated portal now features a dataset rating system (1–5 stars), a dedicated news section on open data topics and multiple notification options, including RSS and Atom feeds and email. Users can follow the progress of their data requests; the requests are actively monitored and the responses summarised in publicly available reports. A newly introduced reuse section showcases practical applications of datasets, with direct links to the source data and the option for users to submit their own reuse cases. To better understand and respond to user needs, the portal team tracks search keywords, analyses traffic and conducts user surveys and workshops. Together, these enhancements reflect a strategic and user-centric effort to elevate the portal's functionality and foster a more mature and responsive open data ecosystem.

Read more about this trend in Section 5.2.

Two participating countries – **Cyprus** (-1 pp) and the **Netherlands** (-3 pp) – experienced slight reductions in maturity on the portal dimension. In **Cyprus**, the national portal previously harvested data from all local and regional sources automatically, but now a majority of datasets, but not all, are harvested in this way. The **Netherlands** temporarily paused monitoring and promotional activities as part of an ongoing update to the platform's vision and ambition.

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 national portals

All participating countries have a national open data portal, **except Bosnia and Herzegovina** where open data is provided through local portals. To ensure more advanced and flexible search capabilities, all national open data portals in the EU provide APIs (100 %) and several provide SPARQL end points (15 EU Member States; 56 %), 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, enabling advanced queries and data retrieval 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 2025 participating countries

Country	National portal website	Technology stack	API present?	SPARQL access point present?
Member State	s			
Belgium	https://data.gov.b	Custom back end with	Yes (see <u>API</u>)	
	<u>e/en</u>	Drupal front end (see		
		<u>GitHub</u>)		
Bulgaria	https://data.egov.	Custom, including	Yes (see API)	
	<u>bg</u>	Fluentd, Elasticsearch		
		node, MariaDB and		
		Graylog		
Czechia	https://data.gov.c	Custom, including	Yes (see API)	Yes (see end point)
	z/english	LinkedPipes		
Denmark	www.datavejviser.	CKAN back end with a	Yes (see <u>API</u>)	
	<u>dk</u>	DCAT plug-in and a front		
		end designed with React		
Germany	https://www.govd		Yes (migrating	Yes (see end point)
		management system and		
		piveau (previously CKAN)	to piveau API)	
		for data storage		
Estonia	https://andmed.e			Yes (see end point)
esti.ee/		Typescript, PostgreSQL		
		and Solr		
Ireland	https://data.gov.ie	CKAN	Yes (see <u>API</u>)	
Greece	https://data.gov.g	Ov.g Custom Yes (see API) Yes (se		Yes (see end point)
	<u>r</u>			
Spain	https://datos.gob.			Yes (see <u>end point</u>)
	<u>es/en</u>	content management		
		and Virtuoso for the		
		SQARQL end point		

Country	National portal website	Technology stack	API present?	SPARQL access point present?
France	https://www.data. gouv.fr	Udata	Yes (see <u>API</u>)	Yes (see end point)
Croatia	https://data.codef orcroatia.org/	CKAN	Yes (see <u>API</u>)	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 <u>API</u>)	
Latvia	https://data.gov.lv /eng	CKAN	Yes (see <u>API</u>)	Yes (see <u>end point</u>)
Lithuania	https://data.gov.lt /?lang=en	Self-developed solution in Python	Yes (see API)	Yes (see <u>end point</u>)
Luxembourg	https://data.public .lu/en	Udata	Yes (see <u>API</u>)	
Hungary	https://kozadatpo rtal.hu	CKAN	Yes (see API)	
Malta	https://open.data. gov.mt	CKAN	Yes (see API)	
Netherlands	https://data.overh eid.nl/en	CKAN	Yes (see API)	
Austria	https://www.data. gv.at/home?locale =en	piveau and DCAT-AP (previously based on CKAN and Wordpress)	Yes	
Poland	https://dane.gov.p	Custom, including Falcon, Django, RDFLib, Wagtail CMS and Typescript (microservice architecture)	Yes (see <u>API</u>)	Yes (see <u>end point</u>)
Portugal	https://dados.gov. pt/en/	Udata	Yes (see API)	Yes (see end point)
Romania	https://data.gov.r o/en	CKAN	Yes (see <u>API</u>)	
Slovenia	https://podatki.go v.si	CKAN	Yes (see API)	
Slovakia	https://data.gov.s k/en	Custom, including LinkedPipes	Yes (see API)	Yes (see end point)
Finland	https://www.avoi ndata.fi/en	CKAN	Yes (see API)	Yes (see end point)
Sweden	https://www.data portal.se/en	Custom, including EntryScape, the Strapi CMS and NodeBB	Yes (see <u>API</u>)	Yes (see <u>end point</u>)
EFTA countries	1	,		
Iceland	https://opingogn.i	CKAN		

Country	National portal website	Technology stack	API present?	SPARQL access point present?
Norway	https://data.norge		Yes (see <u>API</u>)	Yes (see end point)
	<u>.no</u>	Phython, Kotlin,		
		Typescript, Rust, React,		
		Next.js, Spring,		
		RostgreSQL, MongoDB		
		and Kafka		
Switzerland	https://opendata.	CKAN	Yes (see API)	
	swiss/en/			
Candidate cour	ntries			
Albania	https://opendata.	Custom-built using .NET	Yes (see API)	Yes (see end point)
	gov.al/en	Core 8, follows the Clean		
		Architecture pattern and		
		uses Hangfire for		
		harvesting		
Bosnia and	None			
Herzegovina				
Montenegro	https://data.gov.	CKAN	Yes (see API)	
	me/			
North	https://data.gov.	CKAN	Yes	
Macedonia	<u>mk/</u>			
Carbia	https://data.ass.com	Udata	Vac (see ADI)	
Serbia	https://data.gov.rs		Yes (see API)	
Ukraine	https://data.gov.u	CKAN	Yes (see <u>API</u>)	Yes (see <u>end point</u>)
	<u>a/en</u>			

(Questions PT1, PT2, PT3 and PT4)

NB: CKAN, Comprehensive Knowledge Archive Network; CMS, content management system.

Preview functions

Making data more accessible through preview functions can encourage individuals to engage with the data. 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. In 2025, such features have become more widely adopted and cover a diverse range of datasets. Previews of tabular data remain more widely available than previews of geospatial data.

Table 3: Countries' responses to questions on preview functions

	Does the national portal offer a preview	Does the national portal offer a preview
	function for tabular data?	function for geospatial data?
EU-27		17 Member States (63 %) report having a preview function for geospatial data. This is an increase from 2024, with Italy and Malta 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.

	Does the national portal offer a preview function for geospatial data?
Serbia and Ukraine report having preview	Albania, Montenegro, North Macedonia and Ukraine report having a preview function for geospatial data.

(Questions PT20 and PT21)

Providing feedback on the portal

To improve usability and support ongoing development of the portal, national portals may include features that allow users to provide feedback. This typically includes a visible 'Contact us' or 'Feedback' button for general comments about the portal. In some cases, users can also rate individual datasets or submit dataset-specific feedback. Table 4 presents an overview of how countries have implemented these features.

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

	Does the national portal offer	Does the national portal	Does the national portal
	a mechanism for users to	· ·	· ·
1		offer a mechanism for users	provide a mechanism for
	provide general feedback?	to provide feedback on	users to rate datasets?
		specific datasets?	
EU-27	All Member States (100 %)	20 Member States (74 %)	16 Member States (59 %)
	enable users to provide	enable users to provide	enable users to rate
	general feedback on the	feedback on a specific	datasets. France and Greece
	portal. Germany and Greece	dataset. Belgium removed	are the latest Member
	newly report offering this	the feature due to little	States offering this feature.
	feature.	usage.	
EFTA	All three participating EFTA	Iceland and Norway enable	None of the participating
	countries enable users to	users to provide feedback	EFTA countries enables
	provide feedback on the	on specific datasets.	users to rate specific
	portal, with Switzerland		datasets.
	newly reporting this.		
Candidate	Albania, Montenegro, North	Albania, Montenegro,	Albania, Montenegro,
	Macedonia, Serbia and	North Macedonia, Serbia	North Macedonia and
	Ukraine enable users to	and Ukraine enable users to	Ukraine enable users to rate
	provide general feedback on	comment on specific	datasets.
	the portal.	datasets.	
L	L	L	

(Questions PT8, PT9 and PT10)

While general feedback mechanisms have long been a standard feature across national open data portals, this year sees further refinement in how users can interact with portal teams and dataset publishers. Many countries continue to offer direct contact channels, typically through general forms, while others are expanding their feedback channels by offering more interactive features. **Greece**, for instance, has newly introduced a dataset rating system, joining a growing number of countries that allow users to evaluate datasets through star-based ratings. At the same time, some countries are reassessing these features. **Belgium**, for example, removed its dataset-level feedback option due to

limited uptake, while **France** uses several features to understand the usefulness or quality of a dataset and to display these to users (Figure 3), including the following.

- Usage metrics, such as reuse counts, are prominently displayed and serve as indicators of interest and relevance.
- Users can mark datasets as favourites, which acts as a form of positive feedback.
- Open discussions are available on each dataset page, allowing users to share critiques and/or suggestions.
- A reporting function is available to flag outdated or problematic content.
- Each dataset has a metadata quality score, which is based on the completeness and structure of its information.



Figure 3: Screenshot from data.gouv.fr showing the dataset-level information displayed to users.

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. Common approaches to promoting HVDs on the national portal include incorporating filtering options to help users easily locate these datasets and 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.

Table 5: Countries' responses to the question on HVDs

	Do you promote HVDs on your national portal?
EU-27	24 Member States (89 %) report actively promoting HVDs on their national portals. The newest Member States reporting this are Belgium , Italy , Malta , the Netherlands and Portugal .

(Question PT22)

NB: Non-EU countries were not surveyed on this question as <u>Commission Implementing Regulation (EU) 2023/138</u> on HVDs applies only to Member States.

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. It is beneficial to users if such requests and their progress status are 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	Are requests for datasets	Does the team monitor the
	enable users to request	and their progress status	extent to which requests
	datasets?	presented in a transparent	result in the publication of
		manner on the national	the requested data?
		portal?	
EU-27	23 Member States (85 %),	19 Member States (70 %),	24 Member States (89 %)
	with Germany as the latest	with Malta as the latest	report that they monitor the
	addition, provide the	addition, report that they	results of requests, with
	possibility for users to request	display the progress of	Germany being the newest
	datasets.	requests on their national	addition.
		portals.	
EFTA	Like in 2023, Norway reports	Like in 2023, Norway	Like in 2023, Norway
	that it provides the possibility	reports that it displays	reports that it monitors the
	for users to request datasets.	requests on its national	status of requests.
		portal.	
Candidate	Albania, North Macedonia,	Albania, North Macedonia	Albania, Montenegro,
	Serbia and Ukraine provide	and Ukraine report	North Macedonia, Serbia
	the possibility for users to	displaying requests on their	and Ukraine report that
	request datasets.	national portals.	they monitor the status of
			requests.

(Questions PT13, PT14 and PT15)

The open data team is typically responsible for reviewing dataset requests, monitoring them over time and providing responses. In some countries, this process is supported by automated tools that allow users to submit requests through standardised forms and dashboards. In others, requests are sent via email and require manual evaluation by the open data team.

Highlight from France – transparency in data requests

Users in **France** can request datasets that are not yet available through a dedicated public forum. A specific category on the <u>forum</u> allows individuals to post open data requests and engage in discussions with the portal team and other users. To ensure transparency, the progress of these requests is tracked on a separate <u>monitoring page</u>, which outlines the status of each request. This setup enables users to follow the life cycle of a request, from submission to evaluation and potential publication. France's approach aims to encourage open dialogue and community participation, helping to prioritise data needs and strengthen the responsiveness of public data services.

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 can 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	19 Member States (70 %), with the new addition of Malta , report that they enable users to actively publish datasets on their national portals.	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 its national portal.	Norway and Switzerland report that they notify users when new datasets are available.
Candidate	Serbia and Ukraine report that they enable users to publish datasets.	Albania, North Macedonia, Serbia and Ukraine report offering notifications on new content being published.

(Questions PT7 and PT12)

Enhancing the open data culture

To engage users, many national portals provide a space to find information, events and news on relevant open data topics in the country. Additionally, national data portals often provide functionalities that enables reusers and data providers to interact. 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

	find information and news on relevant	Does the national portal offer a mechanism through which users can undertake exchanges with others?
EU-27	Bulgaria , report publishing information on open data topics in the country.	20 Member States (74 %), with Germany as the most recent addition, report providing a space for dialogue on their national portals, such as a discussion forum.
EFTA	publishing information on open data	Norway reports offering a mechanism for users to exchange information with other users.

find information and news on relevant	Does the national portal offer a mechanism through which users can undertake exchanges with others?
Serbia and Ukraine report updating users	North Macedonia, Serbia and Ukraine report enabling users to interact with each other on their national portals.

(Questions PT11 and PT16)

National portals typically support user engagement by offering access to news and updates on open data developments. Most platforms include a dedicated section for blog posts or announcements, while others highlight recent topics directly on the home page. Social media is also used to share updates, with several countries actively posting across multiple platforms. Some portals stand out for their multi-format content strategies. **Spain**, for instance, combines expert commentary, infographics and event recaps to reach a broader audience, supported by a regular newsletter sent to thousands of subscribers.

In terms of interaction with data providers, several countries host discussion forums on their open data portals. Many portals also allow users to comment directly on individual datasets. In terms of the underlying technology, **Austria** and **Romania** use the Disqus plug-in for their comment feature and forum. Other countries use external services for such exchanges. For example, **Czechia** and **Spain** use GitHub and **Belgium** and **Cyprus** have set up chat rooms on Element.io (formerly Riot.im). Nonetheless, other countries have discontinued such features. **North Macedonia** has currently disabled its comment section due to issues with bots. **Finland** has withdrawn its discussion board due to low use and for security reasons. The forum had issues with fake accounts that fed the platform different kinds of advertisements, which required a lot of manual moderation to manage.

Providing examples of open data reuse

National portals often include sections that highlight how open data is reused, helping users explore practical applications and success stories. These examples are typically tagged or linked to relevant datasets, making it easier to navigate and understand the context. For example, **Sweden** has recently updated its approach by relaunching its 'Good examples' section, which showcases reuse cases and presents best practices from public actors. 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	Does the national portal	Does the national portal
	showcase reuse examples, suci	hreference the datasets	provide the possibility for
	as in a designated section of	that the showcased reuse	users to submit their own
	the portal?	examples are based on?	reuse cases?
EU-27	24 Member States (89 %)	22 Member States	21 Member States (78 %)
	report highlighting reuse	(81 %), with Germany as	report enabling users to
	cases in a designated section	the latest addition,	submit their own reuse
	of their portals. This feature	report linking reuse	cases.
	is temporarily no longer	cases to the underlying	
	available in Greece as it	datasets.	

	Ukraine report highlighting reuse cases in a designated section of their portals.	North Macedonia, Serbia and Ukraine report linking reuse cases to the underlying datasets.	Serbia and Ukraine report enabling users to submit their own reuse cases.
Candidate	Albania, Montenegro, North	Albania, Montenegro,	Albania, North Macedonia,
EFTA	report highlighting reuse cases in a designated section	Norway and Switzerland report linking reuse cases to the underlying datasets.	Norway and Switzerland report enabling users to submit their own reuse cases.
	migrates to a redeveloped portal.		
	showcase reuse examples, such as in a designated section of	_ ·	Does the national portal provide the possibility for users to submit their own reuse cases?

(Questions PT17, PT18 and PT19)

5.3. Portal usage

This indicator examines whether portal administrators regularly evaluate how well the portal's design, features and available data align with user needs. While direct user feedback can offer valuable insights, it is often anecdotal and limited in scope. For this reason, this indicator also considers whether systematic monitoring is in place to better understand user behaviour. This includes the collection and analysis of data such as the number of unique visitors, typical user profiles, the most frequently accessed datasets, preferred data categories and traffic generated through the portal's APIs.

User analytics

Understanding how national portals are used is useful for countries aiming to strengthen both the supply and reuse of open data. Commonly used tools for website tracking include Matomo Web Analytics, Google Analytics and Piwik PRO. Some countries also report using Siteimprove and Fathom. In addition to tracking visitor numbers, countries may also use tools such as user satisfaction surveys and user workshops, monitoring search engine optimisation performance and social media analysis to gain deeper insights into user behaviour and needs. Table 10 presents an overview of how countries responded to the questions related to 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 (100 %) report that they monitor the portal's traffic.	25 Member States (93 %) report that they conduct other activities to understand users' needs. Croatia , Latvia and Malta are the newest Member States that report this.
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.	Albania, Montenegro, Serbia and Ukraine report that they conduct other activities to understand users' needs.

(Questions PT23 and PT25)

Enhancing the performance of national portals

User feedback continues to play a central role in shaping the development of national open data portals. Many countries actively analyse how users interact with their portals, using insights from dataset access, download behaviour and feedback to guide improvements. At the same time, countries are investing in outreach efforts to promote open data and engage wider audiences. These often include arranging annual hackathons or open data meetups that bring together public sector representatives and businesses, academia or other citizen groups. It is also common practice to promote the national open data portal through institutional newsletters, by cross-referencing the national portal on other official government websites, by leveraging the brand of the portal as the officially acknowledged central national platform for open data and through promotional campaigns on social media channels such as Bluesky, Facebook, LinkedIn, Mastodon, YouTube and X (formerly Twitter). Table 11 provides an overview of how countries responded to the questions related to this topic.

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

		Do you undertake any activities to promote the portal and attract new users or new audiences?
EU-27	insights from users to keep improving their portals.	24 Member States (89 %) report conducting activities to promote and attract new users. This number has decreased by one country, the Netherlands , since 2024.
EFTA		Norway and Switzerland report conducting activities to promote and attract new users.
Candidate		Albania, Montenegro, North Macedonia, Serbia and Ukraine report conducting activities to promote and attract new users.

(Questions PT26 and PT27)

Highlight from Ireland – enhancing reach through strategic promotion and engagement

Ireland has adopted a multichannel approach to increase visibility and engagement with its national open data portal. By combining targeted outreach, strategic partnerships and user-focused communication, the portal team has successfully broadened its audience and encouraged greater data use.

Key initiatives include the following.

- **Newsletter and network amplification.** The portal's newsletter is widely distributed not only to subscribers but also through key networks such as open data liaison officers, the advisory group and the governance board.
- Training and public sector collaboration. Open data training is shared via public sector learning and development teams, helping to build awareness and capacity across government bodies.
- Social media and event outreach. The team actively promotes the portal on platforms like X and shares QR codes during conferences and university events, such as Love Data Week, to engage students, researchers and the wider public.
- **User-focused platform and strategy.** Ireland's second national open data strategy emphasises user engagement, while the portal itself offers intuitive navigation, topic-based categorisation and regular updates to support discovery and usability.
- Community building and support. Through the Open Data Engagement Fund, workshops and direct support to data publishers, Ireland fosters a vibrant open data ecosystem that encourages both data publication and reuse.

Most popular data domains

Efforts are often undertaken to optimise search and discoverability, including by tracking which keywords are used to search for data and content, identifying the most and least visited pages, and evaluating how easily users reach datasets. Some countries report that they explicitly prioritise improving metadata quality and ensure that datasets are properly categorised and tagged with relevant keywords to improve the portal's internal search functionality and to boost the portal's visibility on external search platforms. This includes actions like implementing schema.org to provide better findability in Google, as reported by **Czechia** and the **Netherlands**. There are also examples of new Al-based search features, in **Norway** for instance, that further support content discoverability. In addition, **Ireland** and the **Netherlands** report advanced search features that are based on metadata indexing via Solr. Table 12 summarises how countries addressed the questions related to this topic.

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

	Do you monitor what keywords are used to	Do you take measures to optimise the	
	search for data and content on the portal?	al? search and discoverability of content?	
EU-27	25 Member States (93 %), with Portugal as the most recent addition, report that they monitor the keywords used in their portals	All Member States (100 %) report optimising the discoverability of datasets.	
	and the most and least consulted pages.		
EFTA	Norway and Switzerland report that they monitor the keywords used in their portals and the most and least consulted pages.	All participating EFTA countries report that they implement measures to improve the discoverability of content.	
Candidate	Albania, Montenegro, Serbia and Ukraine report that they monitor the keywords used in their portals and the most and least consulted pages.	Albania, Montenegro, North Macedonia, Serbia and Ukraine report that they implement measures to improve the discoverability of content.	

(Questions PT28 and PT30)

Application programming interfaces

APIs enable reusers to access metadata programmatically, allowing automated searches and data processing. National portals can analyse API usage similarly to how they analyse regular portal traffic. To support both human and machine readability, metadata can be presented in clear, accessible language. Table 13 provides an overview of how countries responded to the questions related to this topic.

Table 13: Countries' responses to questions on APIs

	-	Is the metadata on your portal available in clear, plain language to enable both humans and machines to read and understand it?
EU-27		that is written in language that is understandable to humans and machines,
EFTA	. , , ,	All participating EFTA countries report providing human-readable metadata.
Candidate	Albania, Montenegro, Serbia and Ukraine report analysing API usage.	Albania, Montenegro, North Macedonia, Serbia and Ukraine report providing human- readable metadata.

(Questions PT24 and PT31)

5.4. Data provision

This indicator assesses how actively data providers contribute to national portals and the strategies in place to encourage their involvement, including the links between national and regional/local portals. It also examines how portals support access to citizen-generated data and data that cannot be openly shared. Finally, it evaluates how well the portal infrastructure supports access to real-time and dynamic datasets.

Official data providers

In general, official data providers make data available on the national open data portal. In many countries, legislation mandates that public sector open data must be registered in the national open data portal. Common reasons for public sector providers not providing data include low awareness by public actors of the benefits of open data; a perception that data sharing is difficult, for example due to national security risks and uncertainty about what data can be shared as open data; and governance structures, such as decentralised systems, making it difficult to strongly incentivise regional actors to share data. Furthermore, most countries make it possible for users to discover datasets that exist but are not openly accessible. In these cases, there is often a dedicated page for these datasets, along with a notice explaining the restricted access and instructions on how to request permission. Such countries often have the long-term objective of making their national open data portal the central portal for all public data. 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	the majority of public sector providers supply data to the national portal.	21 Member States (78 %) report that they show users if data exists that cannot be made available as open data. Belgium and Lithuania newly report this.
EFTA	Norway assesses that the majority of data providers contribute data to the portal, while Switzerland assesses that approximately half of data providers supply data. Iceland reports that only a few public sector bodies supply data to the national portal.	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 approximately half of data providers supply data to the portal.	None of the participating candidate countries report showing users if data exists that cannot be made available as open data.

(Questions PT32 and PT40)

Non-official data providers

Some countries also allow non-official providers to contribute data to their national portals, 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 portals.		
EFTA	None of the EFTA countries report allowing the publication of data from non-official providers on their portals.		
Candidate	Serbia and Ukraine report allowing the publication of non-official data on their portals.		

(Question PT39)

Assistance for data providers

National portals can expand the availability of open data by identifying providers that have not yet contributed and actively supporting them in the publishing process. Countries use a range of approaches to support data providers in publishing datasets on national portals, such as offering general guidance, creating online tutorials and frequently asked questions (FAQs) pages, and arranging targeted meetings. 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 processes?
EU-27	All Member States (100 %) report that they identify the data providers not yet publishing data on their national portals.	All Member States (100 %), with the recent addition of Lithuania , report that they take concrete actions to assist these data providers with their publication processes.
EFTA	All participating EFTA countries report that they identify the data providers not yet publishing data on their national portals.	All participating EFTA countries report that they take concrete actions to assist these data providers with their publication processes.
Candidate	Albania, Montenegro, North Macedonia, Serbia and Ukraine report that they identify the data providers not yet publishing data on their national portals.	Albania, Montenegro, North Macedonia, Serbia and Ukraine report that they take concrete actions to assist these data providers with their publication processes.

(Questions PT33 and PT34)

Regional and local data sources

While national portals focus primarily on datasets from national-level sources, regional and local data can provide valuable, context-rich insights across various domains. Integrating these datasets into national platforms enhances their visibility and encourages wider 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	Are regional and local portals	To what degree are data from
	data portal, are there other	and their data sources	regional and local sources
	regional and local portals?	discoverable via the national portal?	harvested automatically?
EU-27	24 Member States (89 %) report that there are other regional and local portals besides the national open data portal.	21 countries (78 %) report that regional and local sources are discoverable via the national portal. The number has decreased by one country, Sweden , since 2024.	
EFTA	All participating EFTA countries report that regional and local portals exist in their country. Iceland newly reports this.	countries report that regional and local sources are	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	Albania, Bosnia and	Serbia and Ukraine report	Ukraine reports that all
		that regional and local	regional and local datasets
	Ukraine report that	sources are discoverable via	are harvested automatically.
	regional and local portals	the national portal.	For Serbia , this is true of the
	exist in their country.		majority of datasets.

(Questions PT35, PT36 and PT37)

In most cases, regional and local data are also made discoverable through the national portal. (Some countries, due to their size and governance structures, do not have regional or local portals.) In many countries, the data from smaller regional and local portals is integrated into the national catalogue through automated harvesting, typically following agreements with local authorities. However, not all countries have adopted this approach. In **Estonia**, for example, most local governments and other local data owners are small organisations with limited budgets and staff, and often with no designated data

governance specialists nor procedures. Since these organisations typically have only a small number of datasets, it is most practical to manage these manually.

Access to real-time and dynamic data

Most national portals include real-time or dynamic datasets. Dynamic data is information that changes over time and is updated at regular intervals, such as weekly unemployment statistics. Real-time data, however, is refreshed continuously and at short intervals, with examples including live traffic updates, air quality measurements and current weather conditions. This type of data is essential for applications like navigation systems that optimise routes based on traffic or models used for economic forecasting. Table 18 provides a summary 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?	
	25 Member States (93 %), with Malta as the most recent addition, report that they offer real-time or dynamic data on their portals.	
EFTA	All participating EFTA countries offer real-time or dynamic data on their portals.	
Candidate	Albania, North Macedonia, Serbia and Ukraine report offering real-time or dynamic data on their portals.	

(Question PT38)

5.5. Portal sustainability

This indicator examines the measures in place to ensure the long-term viability of national open data portals. It covers strategies to boost portal visibility, approaches for collecting and responding to user feedback, and systems for tracking and improving portal performance over time.

Strategy and visibility

A crucial element in maintaining the long-term sustainability of national portals is the development of a clear strategy or action plan. Indeed, in most countries, the national portal is a central element of a broader open data strategy. In some countries, such as **France** and **Italy**, the mission of the open data portal is even set out in law. In other countries, such as **Finland**, the portal is identified as one of the public digital services provided by the government. Additionally, most countries maintain a presence on social media platforms. These channels are actively used to raise public awareness about open data and to engage directly with users and data communities. More countries report having accounts on Bluesky and Mastodon than in previous years. Table 19 provides a summary of how countries responded to the questions related to this topic.

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

	,	ls your national portal active on social media?
EU-27	national portal has a strategy to ensure its sustainability. Malta newly reports this.	23 Member States (85 %) are active on social media to increase the visibility of the portal. Germany and Greece newly report doing this.
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	Albania, Montenegro, Serbia and Ukraine report having a strategy to ensure the portal's sustainability.	Albania, North Macedonia, Serbia and Ukraine report being active on social media.

(Questions PT41 and PT42)

Availability of documents to the public

To promote transparency and support open-source practices, national portals can publish their source code along with relevant documentation and technical artefacts. Platforms like GitHub or GitLab are commonly used for this purpose, enabling public access and collaboration. 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	26 Member States (96 %), with Malta as the newest addition, 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.

(Question PT43)

Monitoring performance

To support ongoing improvement and track progress, national portals can evaluate key aspects of the data they host, such as the total number of datasets, their categorisation and the inclusion of real-time data, and how these elements change over time. In addition, usage statistics and performance reports offer valuable insights that can help guide future developments and justify continued investment. 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 %), with Germany as the latest addition to this group, report that they monitor the characteristics of the data published on the portal. This practice is temporarily not being carried out in Greece as it migrates to a redeveloped portal.	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.
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 its performance on the national portal.
Candidate	Albania, Montenegro, Serbia and Ukraine report that they monitor the characteristics of the data published on the portal.	Albania, Montenegro, Serbia and Ukraine 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)

Many countries have established monitoring systems to support ongoing improvements to their national portals. These frameworks often focus on assessing metadata quality, including the analysis of both general and detailed statistics across datasets. In **Spain**, for example, the portal offers both public and private dashboards to monitor performance. The public dashboard provides general indicators, such as portal visits, published datasets, reuse cases and data distribution by category or format. Publishers and administrators also have access to a private dashboard with more detailed metrics, including trends in datasets by agency, user engagement and publishing activity, helping to guide improvements and ensure data quality.

Many countries also use performance monitoring to improve portal usability. In **Italy**, for example, the portal team conducts targeted activities based on monitoring results to help individual data providers enhance the quality of their published metadata and overall portal performance. Specific guidance is offered through FAQs to address common issues, and logs from the harvesting process are shared with data providers to support corrections when needed.

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 EXPERTE mobile friendly test. In summary:

- 70 % of all portals are mobile friendly;
- 63 % of all EU portals are mobile friendly.

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, 78 % 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, **59** % 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, 72 % pass the largest contentful paint test. This test reports the render time of
 the largest <u>image</u>, text <u>block or video</u> 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, **41** % 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, **18** % 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, **26** % 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, **9** % 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,73 % 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, **60** % 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, **39** % 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, **11** % pass the **link name (WCAG 2.4.4)** test. This test evaluates the clarity and accessibility of links on a website.
- Of all portals, **70** % 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, **76** % pass the **valid language code (WCAG 3.1.2)** test. This test evaluates if the correct language code, such as https://example.com/html/superscripts.
- Of all portals, **76** % pass the **discernible button text (WCAG 4.1.2)** test. This test evaluates if for people with visual impairments, button destination, function, purpose or action can clearly be described.
- Of all portals, **39** % 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.
- While no portal passes all eight tests, **Czechia**, **Estonia** and **France** stand out for passing all tests except the link name (WCAG 2.4.4) test.

5.7. Recommendations

Countries can use the following general advice to improve on the portal dimension of the ODM methodology. The recommendations are tailored to four levels of maturity, ranging from trendsetters to beginners.

Trendsetters

- Invest in the portal so that you can use new workflows and tools that enable a better
 understanding of your users' profiles and needs while preserving their privacy. Ensure that the
 portal supports community contributions, including user-submitted datasets, reuse cases and blog
 content.
- Evaluate options for extending the open data portal such that it serves as a public register of data altruism organisations, or advise your government on which approach would best support new initiatives in this area. Although the ODM assessment focuses on the Open Data Directive (<u>Directive (EU) 2019/1024</u>), open data portals can be leveraged in efforts to implement other items of EU legislation, such as the Data Governance Act (<u>Regulation (EU) 2022/868</u>). For example, open data portals can serve as registers for protected data held by the public sector.
- Continue improving search functionality: ensure that improvements in metadata quality translate
 into better discoverability of datasets, and leverage new tools such as those powered by AI to
 improve search functionality with the existing quality of metadata.
- After establishing an effective system for annotating and filtering HVDs on the portal, focus on maintaining this system and regularly monitoring dataset usage.
- Reach out to and cooperate with other countries to develop solutions to common challenges, including basic, reusable elements such as open-source software that your platforms share (e.g. portal extensions).

Fast-trackers

- Monitor portal usage and seek to understand user profiles to guide improvements. Add features that support interaction between publishers and reusers.
- Enhance the national portal's promotion of HVDs by adding advanced filtering options, allowing users to navigate and explore datasets across the six HVD categories.
- Strengthen support for real-time data publication by identifying key data holders and addressing technical or resource barriers. Promote the publication of data beyond the minimum requirements specified by law.

Followers

- Regularly update the portal to reflect user needs. Include features such as dataset-level feedback, login areas, SPARQL access and APIs.
- Use editorial tools like tags and labels to highlight HVDs and enable filtering. Create a dedicated section for HVDs with updates and explanations.
- Promote reuse cases more prominently, ideally on the home page, and encourage the community to share their examples.
- Analyse portal usage to better understand user behaviour and improve engagement.
- Identify data holders who are not publishing and work to address barriers. Support the publication of real-time data.

Beginners

- Develop a national open data strategy that includes clear provisions for portal development, management and funding. Use action plans to establish responsibilities and ensure follow-through.
- Ensure that the portal supports basic functionality for publishing and discovering datasets. Look to European best practices when selecting technology and features.
- Integrate feedback channels into the portal and ensure that they are easy to use. Be mindful of privacy when implementing analytics tools.
- Create dedicated sections for news and reuse stories to raise awareness and showcase value.
- Begin promoting HVDs by adding a section that explains their significance and gradually labelling relevant datasets to increase their visibility and encourage reuse on the portal.

