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Introduction

The INSPIRE Directive sets the minimum conditions for interoperable sharing and exchange of spatial data across Europe as part of a larger European Interoperability Framework and the e-Government Action Plan that contributes to the Digital Single Market Agenda. Article 21 of INSPIRE Directive defines the basic principles for monitoring and reporting. More detailed implementing rules regarding INSPIRE monitoring and reporting have been adopted as Commission Implementing Decision (EU) 2019/1372 on the 19th August 2019.

This country fiche highlights the progress in the various areas of INSPIRE implementation. It includes information on monitoring 2021 acquired in December 2021 and Member States update.

State Of Play

A high-level view on the governance, use and impact of the INSPIRE Directive in Slovakia. More detailed information is available on the INSPIRE knowledge base.

Coordination

National Contact Point

Name of Public Authority: Ministry of Environment of the Slovak Republic

Postal Address: Tajovského 28

975 90 Banská Bystrica

Slovakia

Contact Email: [Click to email](#)

Telephone Number: +421 048 4374 523

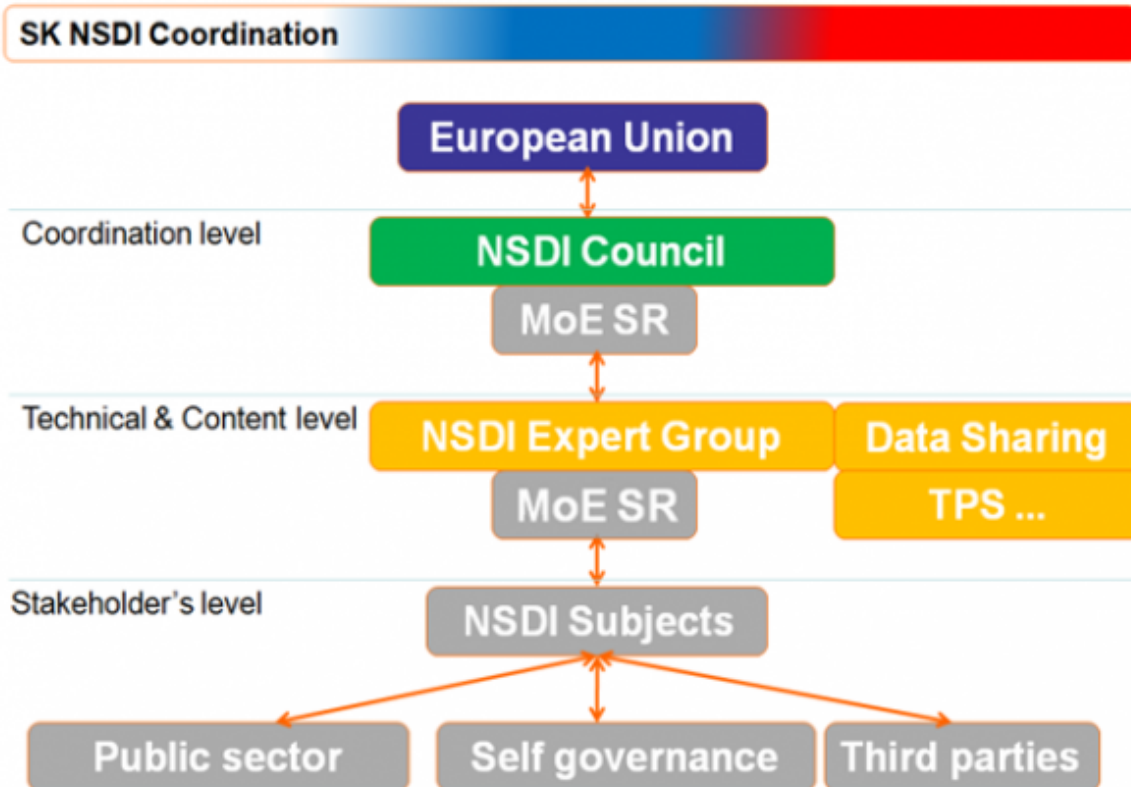
National INSPIRE Website: <http://inspire.gov.sk>

MIG Contacts: Contact Person: Martin Tuchyňa

Email: martin.tuchyna@enviro.gov.sk

MIG T Contacts: Contact Person: Martin Tuchyňa

Email: martin.tuchyna@enviro.gov.sk
Contact Person: Martin Koška
Email: martin.koska@enviro.gov.sk



Coordination Structure & Progress:

- Coordination Structure
 - Coordination of the relevant stakeholders in Slovakia is facilitated on two main levels:
 - Strategy / Main public sector stakeholders' level represented by **Coordination Committee of NSDI (NSDI Council / KR-NIPI)**
 - Technical / implementation level represented by **Expert Group of NSDI (NSDI Expert Group / ES NIPI)**. The ES NIPI coordinates the work of ad hoc Technical Working Groups).
 - Main responsibility for the INSPIRE implementation and coordination was assigned to the Ministry of Environment of the Slovak Republic, supported with the Coordination Council (KR NIPI). KR NIPI is representing the main central public authorities, including the representation of local governance.
 - Ministry of Environment of the Slovak Republic is also in charge of National Geoportal, Spatial Data Registry as well as National INSPIRE website maintenance, communication with the Slovakian stakeholders, communication with European Commission, and provides the primary contacts in both Maintenance and Implementation Groups: MIG (policy) and MIG-T (technical).
 - From the 2020 INSPIRE implementation process is supported with the NSDI Data Office, established with the mission to ensure support for the coordination of the establishment and maintenance of NSDI, including utilising the activities of national ESPUS project.
- Progress
 - **In summary, INSPIRE implementation in Slovakia during 2021 started its improving trend, mainly on the side of spatial data availability, but still a lot needs to be done in the direction of the subsequent usability.**
 - Main focus of the activities during the 2021 was on improvement of the overall INSPIRE implementation performance with the focus on availability of the spatial data via services and interoperability aspects.

- Main progress has been achieved in the conformity of metadata and accessibility of spatial data sets aspects.
- Main challenges remains with the conformity of spatial data sets as well as with the conformity of some types of network services.

Functioning and coordination of the infrastructure

- Coordination of the NSDI during the 2021 took place as via NSDI council and NSDI Expert Group meetings, as well as via specific events (e.g. ITAPA Green Data Digital Talk, ESPUS Conference or Inspirujme se 2021 Conference) and direct communication with the stakeholders. In order to collect information about the status of the INSPIRE implementation across the main stakeholders, set of two documents has been prepared and communicated in order to stimulate and support INSPIRE implementation for each data provider. GeoProfile documents has been prepared providing the summary of the metadata, including related analysis. Secondly, Passport documents, has been prepared with the aim to collect information about spatial data not yet registered in NSDI and with possibility to indicate required support to fulfil INSPIRE requirements. Based on this, specific identification, processing, publication, harmonisation and validation of spatial data and services took place as on the side of the data producers, as well as with the support of MoE infrastructure for those providers with limited capacities on their side.

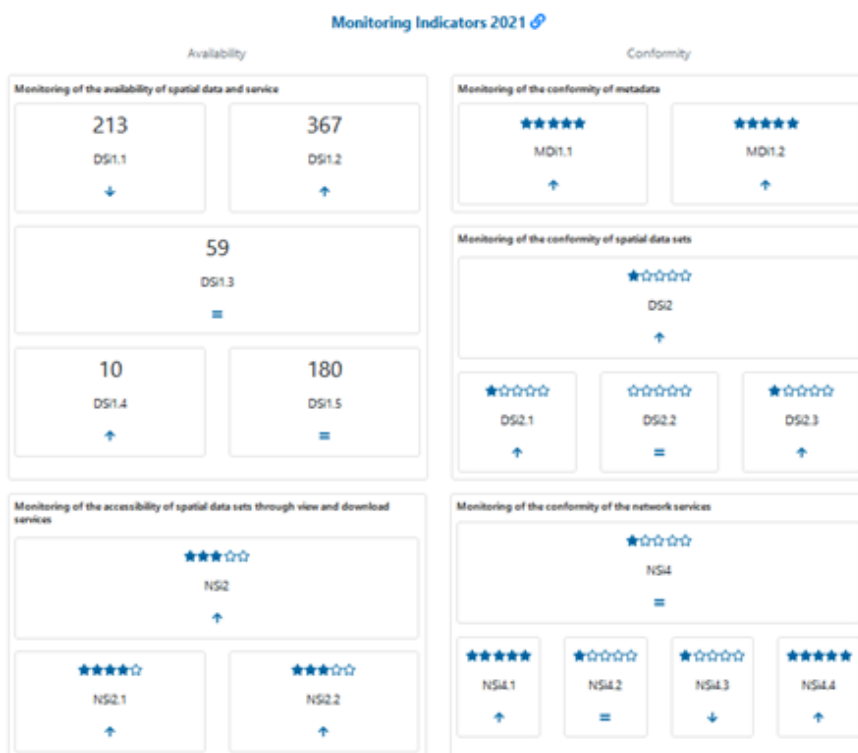


Figure 1: SK INSPIRE monitoring indicators 2021 (Source INSPIRE Monitoring and Reporting 2021)

- Identification and documenting spatial data and services via metadata took place together with revision of the quality and compliance. This was done also in connection to the consolidation of the metadata and clarifying the scope of spatial data content shared on national and European level. This resulted on one hand in reduction of the metadata records for datasets (DSi1.1), and on other hand, increased amount of metadata records for spatial data services available on EC Geoportal from Slovakia (DSi1.2). Additional progress has been also achieved with increased availability of the regional datasets metadata (DSi 1.4). Amount for the INSPIRE priority datasets as well as national scope metadata remains similar to situation from 2020.

Overall results: Absolute number indicators Comparison vs. 2020

country	DSi1.1	DSi1.2	DSi1.3	DSi1.4	DSi1.5
AT	522	598	135	282	258
BE	597	242	283	498	85
BG	174	35	130	55	109
CH	212	33	0	0	7
CY	42	61	11	0	0
CZ	90	192	33	12	78
DE	77193	117891	209	2879	167
DK	198	234	61	0	194
EE	85	114	23	0	85
EL	60	21	55	0	36
ES	243	301	92	50	180
FI	646	205	35	177	153
FR	224	56	146	11	101
HR	147	224	18	22	98
HU	120	63	21	0	9
IE	79	21	42	0	79
IS	91	27	5	2	86
IT	4942	1920	236	3168	833
LI	70	3	0	0	51
LT	132	130	109	0	132
LU	309	59	94	0	309
LV	167	258	73	0	0
MT	150	152	48	0	150
NL	203	342	59	0	175
NO	144	238	14	2	142
PL	147	244	55	0	146
PT	505	508	149	208	201
RO	103	76	27	15	88
SE	242	215	60	9	240
SI	91	128	9	0	77
SK	213	367	59	10	180

■ increase of more than 30% compared to the 2020 value
■ increase between 20% and 30% compared to the 2020 value
■ increase between 10% and 20% compared to the 2020 value
■ increase/decrease lower than 10% compared to the 2020 value
■ decrease between 10% and 20% compared to the 2020 value
■ decrease between 20% and 30% compared to the 2020 value
■ decrease of more than 30% compared to the 2020 value



Figure 2: INSPIRE indicators for availability of spatial data and services (Source INSPIRE Monitoring and Reporting 2021: Process, results and way forward)

- From the content point of view, initial focus is on data available in original structure (AsIs non harmonised data) and consequently start (ToBe INSPIRE data) harmonisation process to meet requirements for INSPIRE themes as well as INSPIRE priority datasets. With that outcomes of the INSPIRE monitoring 2021 confirmed slight increase of the datasets fulfilling requirements for INSPIRE interoperability. At this point is important to highlight negative impact of the availability of the AsIs datasets metadata in the total amount of the metadata harvested on EC Geoportal as with high amount such metadata records, overall indicator values for the INSPIRE interoperability compliance are pulled down as these are counted from total amount of the harvested metadata records. That keeps for instance percentage of harmonised INSPIRE Annex I themes (DSi2.1) still low (15%), although there are already harmonised datasets for all Annex I themes in Slovakia. Similarly for the Annex II themes indicator is low (DSi2.2 – 9%) although except Land Cover all other themes are already represented with harmonised datasets. In case of Annex III themes, there remains themes with missing coverage by the harmonised interoperable datasets. Despite the effort taken during the year also in harmonisation activities, this will impact evaluation about future scoping, which data will be kept on national level and which will be harvested to the EC geoportal. It is important to stress, that it will be important to make available clear and re-usable documentation and sw tools / API functionality not only for validation of the resources, but also for the linking metadata for datasets with service metadata as well as for calculating indicators.
- Important progress has been achieved in the accessibility of the spatial data via view (NSi2.1) and download services ((NSi2.2)).
- Finally, full compliance of the discovery services has been confirmed via (NSi4.1) indicator. Anyway, still significant effort needs to be taken to fulfil compliance requirements for remaining network services.

Overall results: Relative number indicators Comparison vs. 2020

increase of more than 10 percentage points compared to 2020
 increase/decrease of less than 10 percentage points compared to 2020
 decrease of more than 10 percentage points compared to 2020

country	MDI1.1	MDI1.2	DSI2	DSI2.1	DSI2.2	DSI2.3	NSI2	NSI2.1	NSI2.2	NSI4	NSI4.1	NSI4.2	NSI4.3	NSI4.4
AT	98%	99%	77%	89%	81%	71%	50%	87%	56%	97%	100%	96%	97%	#N/A
BE	93%	64%	70%	95%	67%	66%	61%	88%	65%	92%	83%	92%	92%	#N/A
BG	41%	60%	98%	100%	100%	99%	48%	48%	52%	0%	0%	0%	0%	#N/A
CH	0%	0%	2%	6%	2%	0%	1%	2%	1%	0%	0%	0%	0%	#N/A
CY	0%	0%	2%	0%	25%	0%	0%	0%	62%	0%	#N/A	0%	0%	#N/A
CZ	56%	93%	48%	95%	91%	21%	50%	86%	79%	96%	100%	96%	96%	100%
DE	71%	94%	74%	57%	60%	74%	60%	86%	63%	99%	100%	98%	99%	#N/A
DK	62%	57%	61%	95%	63%	57%	24%	51%	29%	95%	100%	94%	96%	#N/A
EE	95%	73%	100%	100%	100%	100%	55%	85%	55%	96%	100%	94%	98%	#N/A
EL	97%	100%	3%	40%	#N/A	0%	98%	98%	98%	5%	100%	0%	0%	#N/A
ES	93%	98%	100%	100%	100%	100%	43%	79%	45%	100%	100%	100%	100%	#N/A
FI	55%	44%	23%	14%	14%	30%	9%	36%	15%	55%	0%	55%	55%	#N/A
FR	2%	27%	78%	84%	92%	75%	4%	10%	25%	7%	0%	9%	0%	#N/A
HR	96%	94%	97%	100%	100%	95%	26%	65%	28%	92%	100%	90%	97%	#N/A
HU	0%	0%	39%	46%	37%	43%	8%	11%	13%	13%	50%	7%	11%	#N/A
IE	99%	100%	100%	100%	100%	100%	53%	56%	54%	100%	100%	100%	100%	#N/A
IS	98%	96%	55%	67%	71%	38%	0%	0%	40%	0%	#N/A	0%	0%	#N/A
IT	99%	99%	30%	33%	22%	28%	5%	10%	13%	3%	25%	3%	3%	0%
LI	1%	0%	11%	87%	16%	7%	13%	17%	16%	50%	#N/A	100%	0%	#N/A
LT	96%	100%	98%	97%	100%	99%	45%	45%	95%	100%	100%	100%	100%	#N/A
LU	100%	100%	72%	100%	94%	62%	80%	86%	91%	100%	100%	100%	100%	#N/A
LV	0%	0%	75%	77%	64%	81%	33%	59%	37%	3%	#N/A	5%	2%	#N/A
MT	99%	99%	100%	100%	100%	100%	99%	100%	99%	100%	100%	100%	100%	#N/A
NL	56%	65%	50%	65%	67%	42%	55%	67%	58%	94%	100%	94%	94%	#N/A
NO	1%	0%	10%	11%	11%	8%	15%	19%	46%	15%	100%	16%	14%	#N/A
PL	100%	100%	94%	100%	50%	92%	50%	54%	56%	97%	100%	95%	99%	#N/A
PT	100%	97%	50%	63%	49%	49%	57%	79%	60%	69%	#N/A	75%	62%	#N/A
RO	40%	87%	42%	70%	31%	34%	18%	21%	20%	90%	100%	94%	85%	#N/A
SE	78%	86%	100%	100%	100%	99%	79%	90%	83%	100%	100%	100%	100%	100%
SI	69%	92%	88%	100%	79%	90%	1%	57%	9%	98%	#N/A	100%	100%	#N/A
SK	100%	98%	15%	18%	9%	15%	62%	75%	65%	24%	100%	24%	23%	100%



Figure 3: INSPIRE indicators for conformity of metadata, spatial data sets, accessibility of spatial data and conformity of network services (Source INSPIRE Monitoring and Reporting 2021: Process, results and way forward)

- For the INSPIRE priority datasets, set of new services has been published and documented via metadata, but still further datasets have to be identified, published and documented with the metadata. Where possible harmonisation activities also started to take place. Stronger involvement have to be triggered for the domains of Nature, Noise, Waste and Industrial emissions

INSPIRE priority list of datasets for e-Reporting – progress since late 2020

Where do they come from?

Status by Member State

Country	21/03/2022		Trends since 17/11/2020*		17/11/2020	
	Metadata	Download services	Download services	Metadata	Download services	
Austria	135	129	—	138	126	
Belgium	285	262	↑↑	161	91	
Bulgaria	244	97	↑↑	117	23	
Croatia	18	8	↑	16	1	
Cyprus	11	9	—	11	9	
Czech Republic	33	15	—	29	26	
Denmark	66	58	↑	48	45	
Estonia	23	15	↑	24	7	
Finland	35	35	↑↑	17	16	
France	138	15	**	127	45	
Germany	257	142	↑↑	118	60	
Greece	54	54	—	54	54	
Hungary	20	2	—	20	2	
Iceland	2	2	—	2	2	
Ireland	42	37	↑↑	42	0	
Italy	236	35	↑↑	93	8	
Latvia	73	32	↑↑	57	14	
Liechtenstein	0	0	—	0	0	
Lithuania	109	40	**	93	80	
Luxembourg	94	80	—	90	77	
Malta	48	48	—	57	37	
Netherlands	63	37	↑	36	24	
Norway	14	1	—	14	1	
Poland	55	45	↑↑	46	6	
Portugal	149	107	↑	135	77	
Romania	27	10	—	27	10	
Slovakia	60	34	↑	55	19	
Slovenia	9	9	—	9	4	
Spain	92	92	—	85	84	
Sweden	85	56	—	62	42	
Switzerland	0	0	—	0	0	
Total	2450	1347		1786	991	

Member States with increased access:

- Belgium
- Bulgaria
- Finland
- Germany
- Italy
- Ireland
- Poland

Member States with continuing low access:

- Croatia
- Cyprus
- Hungary
- Romania
- Slovenia



Figure 4: INSPIRE priority datasets progress since 2020.

(Source Status report action 2.1. “needs driven data prioritisation” 15th INSPIRE MIG)

- Aside of information shared by inspire.gov.sk website additional information is communicated also via inspire.gov.sk Facebook Page.
- New INSPIRE INFO Newsletter has been activated sharing related updates on monthly basis.
- Inspire.gov.sk YouTube channel was also made available to share related video information.
- Further support is being provided also via dedicated GitLab project.

Usage of the infrastructure for spatial information

- There is available only limited type of quantifiable evidence of the infrastructure use from Google analytics statistics related to the INSPIRE related websites for 2021:
 - geoportal.gov.sk: 15 872 users, 31 115 relations, 88 128 pageviews, daily average 71 users;
 - rpi.gov.sk: 2 397 users, 4 616 relations, 8 485 pageviews, daily average 10 users;
 - inspire.gov.sk: 2 093 users, 3 642 relations, 5 002 pageviews, daily average 8 users.

Audience

115 Facebook followers

Age and gender

Men 65.20%
Women 34.80%

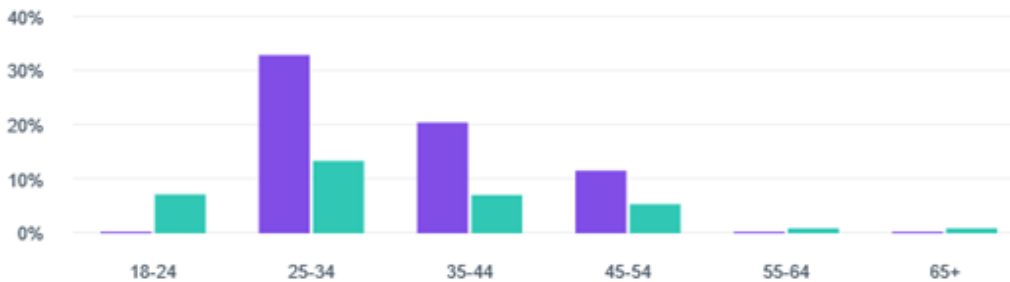


Figure 5: inspire.gov.sk Facebook page audience (Source: <https://www.facebook.com/inspiresk>)

- Increased amount of the data made available via network services as well as their documentation via metadata provides assumption of the offering for the users.
- More detailed monitoring of the network services usage shall be designed and deployed. When some data providers were asked about the monitoring of their data usage, only some replied positively.
- Further activities are foreseen to improve the situation in the monitoring, evaluation and improvement of the usage of the infrastructure for spatial information in Slovakia.

Data sharing arrangements

- In order to improve the support for the documenting Data sharing related metadata attributes, Guidelines document has been prepared and shared for the Spatial data registry.
- All SK INSPIRE datasets are shared under Open Data Creative Commons Attribution 4.0 International (CC BY 4.0) license.
- Activities to prepare and publish national translation of the Creative commons licenses (ver.4) were initiated.
- Similarly there are ongoing activities focused towards user side, in order to support filtering metadata for Open spatial data via Spatial data registry and National Geoportal.
- There has been no significant progress towards connection to the transposition of the new PSI directive in connection to the High value datasets.
- For the integration of the open spatial data to the National Open Data portal MoE is in connection with the team responsible for the New open data portal development on the Ministry of Investments, Regional Development and Informatization of the Slovak Republic in order to ensure synergies.

Costs and benefits

- The cost and benefits evaluation is based on the information collected in the structured tabular information from the representatives of the NSDI council.
- The total indicative costs related with the INSPIRE implementation: **799 756 €** and **790** person days.
- From the Benefits perspective, these were identified mainly as:
 - Unified access to spatial data (priority / harmonized datasets);
 - More efficient management and functionality of internal spatial data and services;
 - Streamlining the work of employees - the quality of consulting and decision-making activities;
 - Reduction of manual requests/ demands for the provision of spatial data from providers;

- Improving the availability of spatial data;
 - Clarification of the existence of spatial data and services;
 - Faster and more up-to-date access to spatial data via network services;
 - Reuse support;
 - Increasing the potential for linking with non-spatial data;
 - Identification of problem areas requiring external support;
 - Increased pressure on digital data machine delivery;
 - Improved the provision of environmental information, not only for the needs of EU monitoring and reporting;
 - Increased pressure on the quality of spatial data and services and their documentation with metadata;
 - Analytical use (environment, healthcare and other areas);
 - Raising awareness of the potential of spatial data and services;
 - Published metadata and spatial data services;
 - Published datasets;
 - Ensuring the availability of forest data to a wide range of users without restrictions;
 - Processing of data requests through services.
- Detailed information about the costs and benefits can be accessed via this summary table. Details, based on the information provided by the organisations.

Key facts and figures

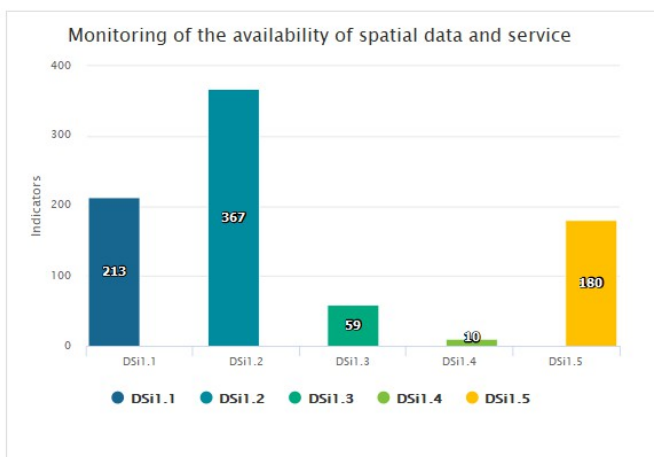
Slovakia (Slovak Republic)

Indicators in support of Commission Decision (EU) 2019/1372 implementing Directive 2007/2/EC (INSPIRE) as regards to monitoring and reporting

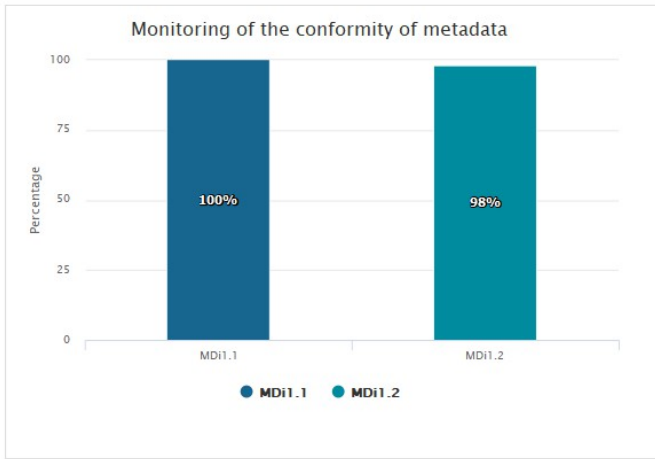
Graphs generated with data taken from: https://inspire-geoportal.ec.europa.eu/mr2021_details.html?country=sk

The date of harvest metadata: 19/12/2021

Endpoint: *INSPIRE-da77b119-9d6e-11e7-b5a7-52540023a883*

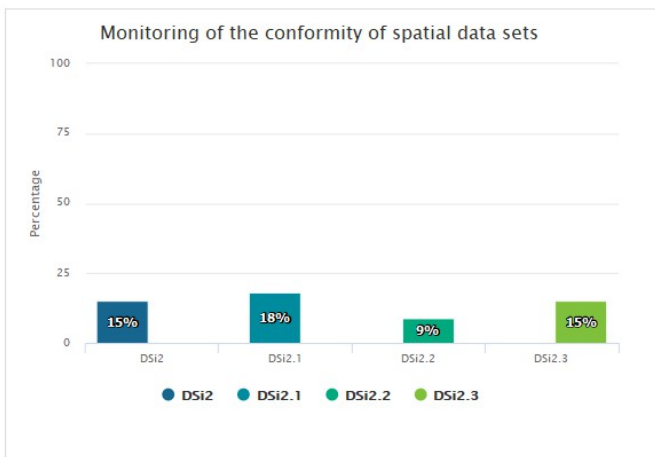


Legend	
Indicator	Definition
● DSi1.1	The number of spatial data sets for which metadata exist
● DSi1.2	The number of spatial data services for which metadata exist
● DSi1.3	The number of spatial data sets for which the metadata contains one or more keywords from a register provided by the Commission indicating that the spatial data set is used for reporting under the environmental legislation
● DSi1.4	The number of spatial data sets for which the metadata contains a keyword from a register provided by the Commission indicating that the spatial data set covers regional territory
● DSi1.5	The number of spatial data sets for which the metadata contains a keyword from a register provided by the Commission indicating that the spatial data set covers national territory



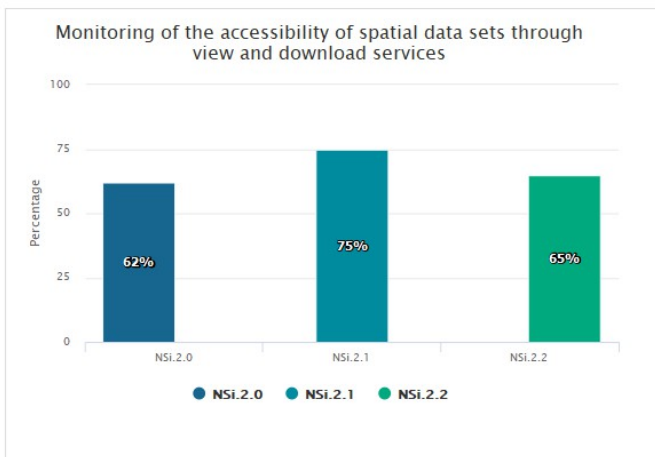
Legend

Indicator	Definition
● MDi1.1	Percentage of metadata for spatial data sets conformant with Commission Regulation (EC) No 1205/2008 as regards metadata
● MDi1.2	Percentage of metadata for spatial data services conformant with Commission Regulation (EC) No 1205/2008 as regards metadata



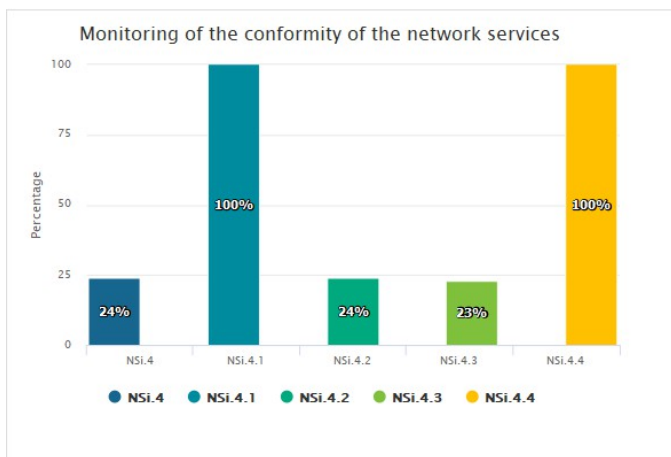
Legend

Indicator	Definition
● DSi2	Percentage of spatial data sets that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets
● DSi2.1	Percentage of spatial data sets, corresponding to the themes listed in Annex I, that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets
● DSi2.2	Percentage of spatial data sets, corresponding to the themes listed in Annex II, that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets
● DSi2.3	Percentage of spatial data sets, corresponding to the themes listed in Annex III, that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets



Legend

Indicator	Definition
● NSi.2.0	The Percentage of spatial data sets that are accessible through view and the download services
● NSi.2.1	The Percentage of spatial data sets that are accessible through view services
● NSi.2.2	The Percentage of spatial data sets that are accessible through download services



Legend

Indicator	Definition
● NSi.4	Percentage of the network services that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services
● NSi.4.1	Percentage of the discovery services that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services
● NSi.4.2	Percentage of the view services that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services
● NSi.4.3	Percentage of the download services that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services
● NSi.4.4	Percentage of the transformation services that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services

