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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 Lithuania. More detailed information is available on the [INSPIRE knowledge base](#).

Coordination

National Contact Point

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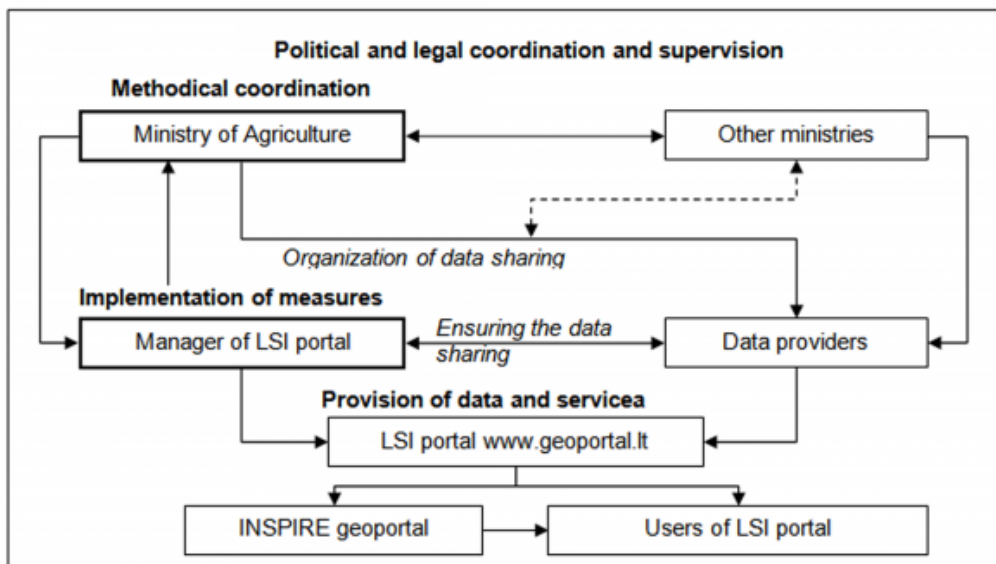
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Coordination Structure & Progress:

- **National Contact point**

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- **Coordination Structure**

To ensure implementation of the provisions of the Directive, the Government of the Republic of Lithuania appointed the Ministry of Agriculture (MoA) as responsible for the development of infrastructure measures to ensure the functioning of the metadata, data sets, network services, sharing services for the themes referred to in the Directive and the access to the INSPIRE portal.

MoA is responsible for:

- acting as a representative in the INSPIRE Committee;
- monitoring the establishment and use of the spatial data infrastructure;
- submitting reports on the implementation of the Directive in Lithuania to the Commission.

The Law of the Republic of Lithuania on Geodesy and Cartography and its implementing legislation transpose the provisions of the Directive into the legal system of the Republic of Lithuania.

The Resolution of Lithuanian Government of 13 October, 2010, No. 1460 and its amendments (the latest amendment of 4 March 2020) set the list of datasets that must be provided for sharing in the Lithuanian spatial information infrastructure; among them the data corresponding to the themes of the Annexes I–III of the Directive and the priority datasets.

Lithuanian Spatial Information portal (LSI portal, www.geoportal.lt) is the main technological platform that is used for the implementation of the provisions of the Directive. It provides the single point national access to spatial data and services. It serves as a free of charge platform for the provision of spatial data and services to the INSPIRE geoportal.

The manager of the LSI portal is State Enterprise GIS-Centras (hereinafter GIS-Centras). GIS-Centras is responsible for administration and maintenance of the LSI portal and participates in organization of data sharing:

- management of the systems of the LSI portal and ensuring uninterrupted service provision;
- administration of the www.geoportal.lt;
- collection, processing and management of metadata;
- development and maintenance of the LSI portal web services;
- management of data provision agreements;
- monitoring the provision of spatial data and services;
- providing support for the LSI portal users and data providers;
- ensuring safety of LSI portal information;
- provision of spatial data and services to the INSPIRE geoportal.

The data providers are the state and municipal authorities and other persons responsible for creating and/or managing spatial data sets. Business, NGOs and physical persons can share their spatial data in the LSI portal free of charge as long as the datasets are considered valuable for the society.

In accordance with the procedure and under the conditions laid down by the Law of the Republic of Lithuania on Geodesy and Cartography and the LSI Portal Regulations, the administrator of the LSI portal concludes agreements with the providers of spatial data sets to ensure that spatial data sets are accessible to users via the LSI portal.

Provision of spatial data and services to the INSPIRE geoportal is also regulated by data provision agreements. Data providers are responsible for transformation of spatial data according to the INSPIRE data specifications. GIS-Centras is responsible for creating INSPIRE compliant metadata and network services for the provided datasets. GIS-Centras organizes information and training events where the services of the LSI portal and benefits of data sharing are explained.

Users of the services of the LSI portal are physical and legal persons who use the data of the LSI portal, spatial data sets and their metadata through the electronic services of the LSI portal.

Progress

- In 01.01.2018 when MoA has undertaken full management of the LSI portal. National land service under the Ministry of Agriculture remains an important data provider but does not anymore play a role in coordination. Still, it is the main provider of national datasets.
- In 2021, national data sharing has been smooth and efficient. Existing datasets were optimized and new datasets have been added to sharing at the LSI portal as well as in the INSPIRE geoportal. The pace of INSPIRE data sharing has slowed down in the end of 2021 because of anticipated reorganization of the responsible organizations – National Land Service and technical manager of the LSI portal State Enterprise GIS-Centras. The changes will certainly cause losing some of the experts and may have bad impact on public image and role of the responsible institutions in the future.
- The procedures of amendments to legal acts regulating spatial data sharing became slower and communication with the data providers less efficient due to organisational uncertainty. The Law of Geodesy and Cartography obliges to make the national datasets (23 datasets such as orthophotographic and reference base maps, DTM, LiDAR datasets, satellite mosaics, geodetic and land management data) open. However, due to long bureaucratic procedures they are not yet fully open – authorisation of users and specific use agreements are used in the national SDI portal.
- New surveying and engineering infrastructure information system for local authorities' large scale information exchange has been launched in mid 2021 thus ensuring access to the large scale data of topographic and engineering information for entire Lithuania. The data is consistent and conformant to a single scheme.
- Some separate datasets within one INSPIRE theme have been combined into one dataset. Although the total number of datasets was thus reduced, we believe that this approach is more efficient and more convenient for the users.
- A project of extension of the LSI portal using EU structural funds (2018–2021) has come to the end. The main outcome – all data themes of the Annexes II and III were covered with compliant INSPIRE data sets and services and all priority datasets made available.
- The principal technological change realised during this reference period is switching from commercial to open source technology for INSPIRE data transformations and sharing. New technological scheme makes the INSPIRE data publishing clearer and smoother. It will also allow for more flexibility and financial savings in the future.
- Targeted communication and events on INSPIRE implementation continue taking place. In 2019, as a part of intense communication campaign, five information workshops have been organized in different regions of Lithuania. In 2020, information booklet in Lithuanian and English was prepared and distributed (available [here](#)). In 2021, two workshop and a public discussion on spatial information services were organised.
- Interactive electronic services of the LSI portal have been improved and extended, the functionality, including mobile access, was improved and further developed, and links with other 29 state and business information systems have been maintained.

Functioning and coordination of the infrastructure

- The objective of the LSI portal is to facilitate centralised provisioning of spatial data sets and their metadata. The LSI

portal allows the integration of public sector spatial information, information from the main state registers, statistical information and other geographically related information with a national scope in such a way that the various spatial data sets managed by different authorities can be accessed via the single common infrastructure and used and analysed in their entirety.

- The LSI portal website can be accessed at the address <http://www.geoportal.lt>.
- The administrator of the LSI portal has signed agreements on the provision of data with the third parties (providers of spatial data sets) who are responsible for spatial data sets corresponding to INSPIRE themes and provide spatial data via the LSI portal.
- Active cooperation is ongoing with the organisations that use the electronic services of the LSI portal. Different information systems, including commercial, use the base map of the LSI portal and other view services free of the charge.
- The coordinating body of the LSI portal liaises and exchanges information with the organisations responsible for environmental impact assessment and the drawing up of reports for the Ministry of the Environment of the Republic of Lithuania and its subordinate bodies. The coordinating body of the LSI portal coordinates exchange of information with international organisations (EuroGeographics, EUREF Geodesy, European Location Framework Project, OpenStreetMap osmfoundation.org and other parties)
- The network services of the LSI portal are publicly accessible at www.geoportal.lt that has Lithuanian and English user interface. General conditions for the use of network services by the public administration organisations and third parties are the same.
- During the reporting period the competence of spatial data users has significantly increased, and more and more spatial information is being used to support the decisions, especially for the planning. This is demonstrated by the growing use of the LSI portal services and the changing nature of the queries and requests made by the users.

Usage of the infrastructure for spatial information

- The usage of the Lithuanian Spatial Infrastructure continuously increases at similar high pace since 2015 (5 to 20 % yearly, depending on indicator). At the end of 2021 total number of provided services reached 3,92 million and the number of registered users exceeded 25 thousands.
- Businesses have a stable interest in the public services of the LSI portal. About 40 % of users are from the business sector. Research and academic organisations comprise about 10% of all users.
- The LSI platform allows the most important Lithuanian public administration bodies to work more efficiently. Legislation obligates the authorities to provide data, reports, other information and different services to other authorities, residents and businesses. Therefore, it may be said that the needs of public administration bodies are based essentially on statutory obligations. They use the LSI portal to download data for the authority's purposes and to provide data to others. In the period of 2016–2021 13 interactive electronic services have been launched. They use spatial data services thus contributing to the increase in usage of the infrastructure for spatial information.
- Lithuanian public administration bodies still lack competence and human resources to make best use of the infrastructure. Systematic education and support is needed, covering both the understanding of the LSI and training in the use of specific existing or future spatial data management tools.
- The LSI data services are particularly important for municipal and state authorities that have limited resources for the work with spatial data and only tackle specific public administration tasks (e.g., check out the specific location and see to the granting of an authorisation to cut down a tree or measure the distance to a body of water). Spatial data provided via the LSI portal can be used for solving various analytical problems, automation of management processes and development of solution support systems in the public and business sectors.
- Providers of spatial information services are most interested in using the already created LSI solutions to create other solutions or develop systems. Furthermore, business interests often cross the borders of a single state, therefore services provided by the INSPIRE portal are very relevant.
- The address dataset (so far only annually updated offline copy) was opened in the end of 2020 – and was immediately used for update of related datasets of the infrastructure. Unfortunately, the open dataset is updated only once a year. National reference base cadastre and some other important national datasets have become available free of the charge, also for commercial purposes. Availability of open data makes LSI services more attractive not only in Lithuania, but worldwide.
- 14 priority datasets have been identified, made compliant with the INSPIRE data specifications and provided in 2021.
- The policy of data provision has been modified with a goal to reduce the total number of spatial datasets and increase the value of each dataset. We seek the national extent and maximum content coverage of the corresponding INSPIRE data specification (except some priority datasets that could not be identified as belonging to a particular data theme). Thus total number of the services provided to the INSPIRE geoportal will be reduced preserving the same information contents.

Indicator (end of the year)	2015	2018	2019	2020	2021
Registered users	9116	17976	20 000	23 286	25343
Total No. of services provided, Mio	1,31	3,21	4,45	3,7	3,92

Data sharing arrangements

- Compared with the previous period, more open data has been introduced and procedures to access spatial data have been simplified. A wider use of open data licences is considered but limited by the existing regulations of different data providers' organizations.
- Agreements on the provision of data are reached by harmonising the regulations on information systems among the managers of information sources referred to in the regulations. The progress is tangible but slower than expected. The majority of data provision agreements are standardised, but there are also specific conditions in some agreements that depend on the nature of data services and on the policies of the data owner. Agreements typically specify the subject matter of the agreement, legal basis for the provision of data, obligations of the parties, data protection rules, etc.
- State and municipal authorities publish information on what information is under their control and what are the conditions for the use of this information on their websites.
- Data sharing between state and municipal authorities is governed by regulations on relevant information systems where external spatial data flows and their sources are specified.
- Information processed by state information systems is provided to the requesting authorities, other legal and natural persons free of charge in accordance with the laws of the Republic of Lithuania or the legal acts of the European Union with just some exceptions. With the help of the systems of the LSI portal, more spatial data sets are provided without any administration fee.
- Insofar there are no data sharing agreements between Community institutions and the administrator of the LSI portal. In accordance with the Law of the Republic of Lithuania on Geodesy and Cartography, spatial data sets and services required for the institutions of the European Union, state authorities and municipalities to carry out public tasks or to submit reports in accordance with European Union legislation relating to the environment, shall be provided free of charge. Providers of spatial data sets have the right to restrict access to spatial data sets via the LSI portal where this is stipulated by other laws. Community institutions and bodies may use electronic services of the LSI portal under the same procedure as they are used by legal and natural persons in Lithuania, by signing such agreements on the use of data as provided for a specific spatial data set provided through the electronic service of the LSI portal. Conditions of the agreements on the use of data are also presented in English.

The main issue with the provision of data is that no funds have been earmarked for ensuring the compatibility of the spatial data with INSPIRE data specifications. Internal resources of the state are not sufficient to ensure both internal exchange of spatial data for national needs and a good level of provision of such data to Community institutions and bodies. As far as possible, the issue is addressed by trying to harmonise national needs with INSPIRE requirements.

Costs and benefits

It is difficult to separate costs for general LSI development, LSI portal maintenance and development and specific INSPIRE Directive implementation costs. The costs incurred during the reference period are divided into two parts:

- One time project costs for the implementation of INSPIRE network services, metadata and spatial data sets in the LSI infrastructure.
- Annual maintenance costs for the LSI portal covering the following categories:
 - Hardware maintenance costs (around 30 % related to INSPIRE),
 - Software maintenance costs (around 25 % related to INSPIRE – reduced by introduction of open source technology),
 - Maintenance work costs (around 30 % related to INSPIRE),
 - Monitoring and reporting costs (around 30 % related to INSPIRE).

Year	LSI development projects (EU structural funds and State budget co-financing), EUR	LSI hardware and software maintenance, administration, management (State budget), EUR
2009	5079718 (17.539,25 LT)	
2010		
2011	373.610 (1.290.000 LT)	260.658 (900.000 LT)
2012	356.957 (1.232.500 LT)	260.658 (900.000 LT)
2013	1.330.242 (4.593.060 LT)	260.658 (900.000 LT)
2014	790.720 (2.730.200 LT)	260.658 (900.000 LT)
2015		252.000

2016		278.000
2017		276.000
2018	228.813	391.000
2019	400.000	496.000
2020	386.600	683.000
2021	52.795	646.400

LSI data providers (but not all) indicate relatively low annual costs additionally incurred as a result of the implementation of the Directive, mostly in three categories:

- preparation and provision of metadata and network services (between 0 and 2500 EUR on an annual basis);
- management of data sets (of the conformity of spatial data sets with the INSPIRE requirements was achieved as part of the project “development of the services of the Lithuanian infrastructure for spatial information by implementing priority measures of the INSPIRE Directive”) — depending on the volume of the data provided from 0 to 5000 EUR per year.
- monitoring and reporting (from 0 to 1000 EUR per year).

As the costs of the implementation of the Directive are inseparable from the benefits provided by the LSI and the LSI portal, any claims regarding the possible development of the national spatial data infrastructure without the Directive would be speculative. The Directive had an undoubted influence on the spatial data strategy in Lithuania.

Benefits directly related to the INSPIRE Directive (those that would likely not have been achieved without the Directive). These are only indirect and non-quantifiable benefits characterised by the following aspects:

- The directive created a legal framework for pursuing interoperability and common use of spatial data. This made it easier to conclude relevant agreements with spatial data providers, to define data sharing practices and procedures and to publish more information and services online.
- The Directive creates an obligation to provide metadata thus informing users about the existing spatial data sets. As a result of implementation of this requirement, the awareness of the authorities and the public to the existence of information resources collected by the state has increased manifold.
- INSPIRE promotes public provision and monitoring of data. Since public provision of data sets and easy access enables users to notice their weaknesses, this suggests that, in the absence of legal obligations, some data providers would not be interested in disclosing their data sets.

Evidence of direct benefits observed in Lithuania:

- Adoption of the Directive led to focused policy-making in the field of spatial information;
- Benefits observed in the field of environmental policy: obligation to improve the quality of existing data and provide modern spatial data services;
- The understanding among the authorities of the benefits of spatial information, integration of data on the basis of spatial data and the possibilities of using them in decision-making has improved. Thus the groundwork is laid for closer cooperation among organisations;
- The public is better informed and the demand for spatial data services is increasing;
- More projects are implemented and spatial data products created. There is a growing amount of initiatives related to broader use of spatial data and innovative electronic services. The legal basis created by the directive allows better justification of the demand for such projects and ensures their funding.

Much greater economic and social benefits are generated at the national level as the overall outcome of the functioning of the infrastructure for spatial information. Since implementation of the Directive speeds up the development of the infrastructure for spatial information and necessitates an increase in its efficiency, there is no doubt that a certain part of these benefits is linked to the Directive but it is impossible to provide quantifiable evidence of this link. Aspects of the common benefits generated by the LSI are presented below:

1. Economic benefits achieved as a result of increased efficiency. These benefits are primarily quantified in work time costs; by multiplying these costs by an average salary of an employee from a relevant field, an expression of these benefits in financial terms may be obtained; however, it must be noted that work time saving does not in itself guarantee financial benefits, thus it cannot be classified as direct benefits. The assessment of the cost-benefit analysis of the implementation of the Directive during the reference period in each year of functioning of the Lithuanian Spatial Information Infrastructure identified **savings** of around 40.000 working days. In terms of average wages in the target sectors in Lithuania, in 2020 this amounted to **annual EUR 5 million**.
2. Indirect benefits achieved as a result of greater spatial data and existing LSI tools for decision-making. Where decision-makers are better informed, this leads to less problems and arguments, and the resulting financial and time costs are

reduced. Examples of such benefits are as follows:

- Improved availability and transparency of spatial data sets resulted in a smaller number of territorial pre-litigation disputes and legal proceedings arising out of the incompatibility of spatial data sets;
 - The land owners being able to view parcel data online, they are better informed, resulting in lower fines for abandoned land administration; the use (restitution) of land more effective resolution of issues;
 - More effective registration of errors and a smaller number of related errors in spatial data sets;
 - A number of reduced duplication of spatial data sets (it is unnecessary to keep copies available online) and no need for repeated efforts to collect similar data sets.
3. Indirect benefits achieved as a result of increased use of spatial information to create various services and new spatial data sets. Examples of such benefits are as follows:
- Higher number of ongoing projects for the development of spatial information systems, greater demand for professionals, new jobs;
 - New spatial data sets are created by using the main national spatial data sets, thereby conferring added value to the collected information, for example, maps displaying the distribution of criminal offences, tourist routes, objects of folklore and literature;
 - Charter distributed data collection (crowdsourcing) by users create spatial data sets, for example, error or issue notifications, tourist information, etc.
4. Indirect social benefits primarily linked to improved awareness and motivation at all levels:
- strengthened cooperation between different organisations by using the same spatial data as an instrument for interconnection;
 - qualitatively new possibilities for using spatial information, increasing number of creators of spatial data and added-value services, especially among educational institutions; less investments in hardware and software and more investments in innovative products;
 - better citizens' awareness of the living and business environment, ability to use spatial analysis tools and more active participation in decision-making; better awareness of officials is linked to expected higher rates of "good" decisions (i.e. fully justified taking account of the more influential environmental factors) decisions.

Key facts and figures

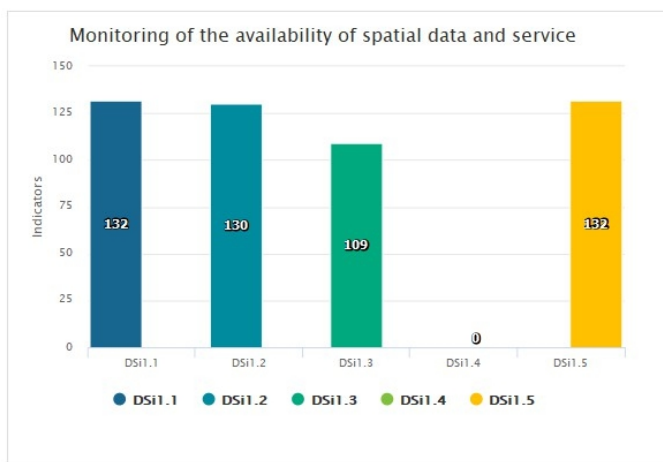
Lithuania

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

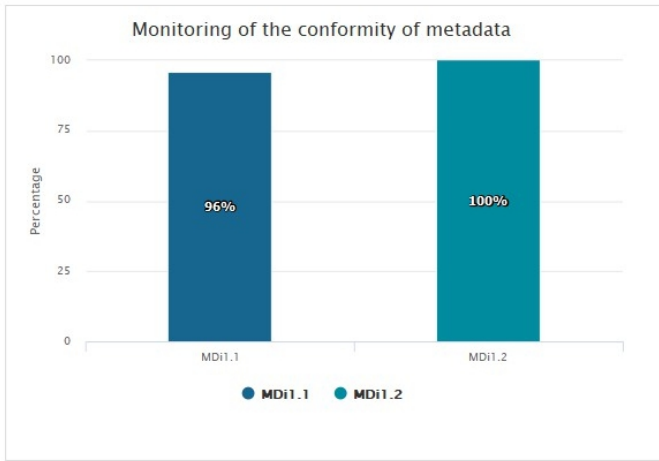
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The date of harvest metadata: 17/12/2021

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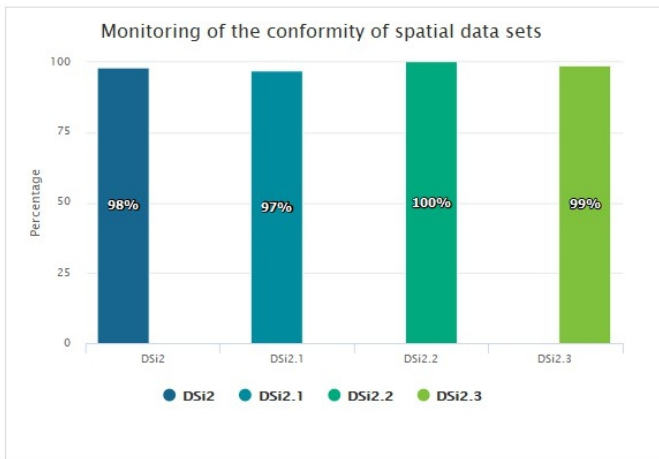


Legend	
Indicator	Definition
DSi1.1	The number of spatial data sets for which metadata exist
DSi1.2	The number of spatial data services for which metadata exist
DSi1.3	The number of spatial data sets for which the metadata contains one or more keywords from a register provided by the Commission indicating 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



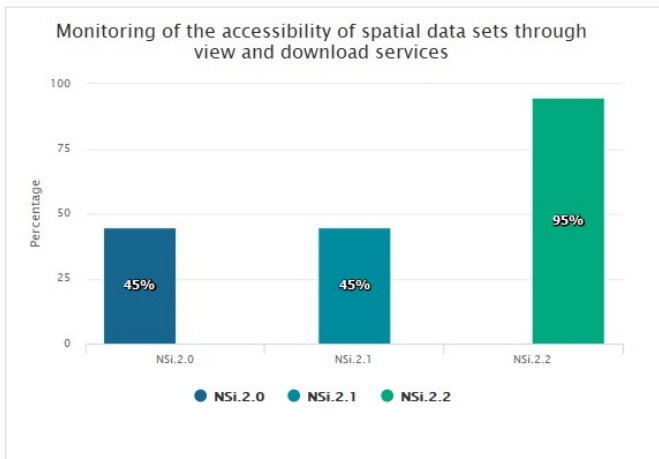
Legend

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



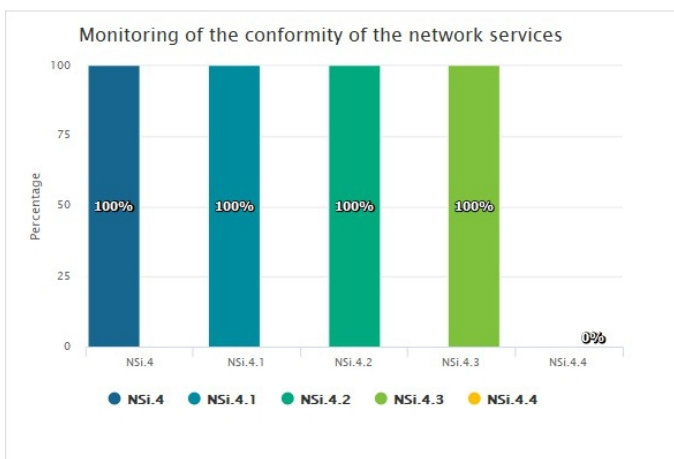
Legend

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

