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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 2019](#) acquired in December 2019 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

Name of Public Authority: Ministry of Agriculture

Contact Email: [Click to email](#)

National INSPIRE Website: <http://www.geoportal.lt/geoportal/>

MIG Contacts: Contact Person: Mindaugas Pažemys

Email: M.Pazemys@gis-centras.lt

Contact Person: Aušra Kalantaitė

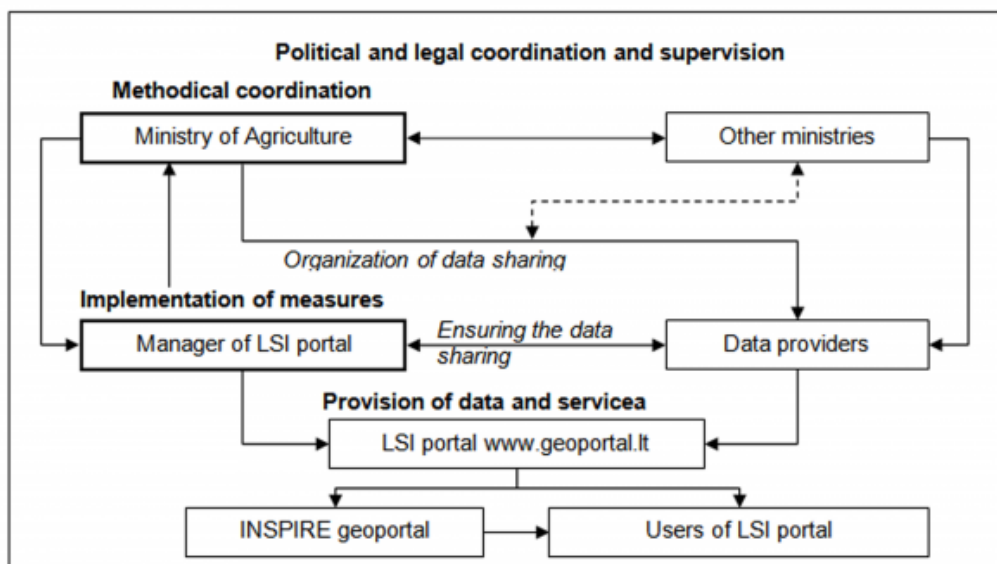
Email: ausra.kalantaite@zum.lt

MIG T Contacts: Contact Person: Mindaugas Pažemys

Email: M.Pazemys@gis-centras.lt

Contact Person: Jurgita Špūraitė

Email: jurgita.spuraite@nzt.lt



Coordination Structure & Progress:

- **National Contact point**

Name of public authority	The Ministry of Agriculture of the Republic of Lithuania
Mailing address	Gedimino Av. 19, Lt-01103 Vilnius
Telephone number	+ 370 (5) 239 1111
Fax number	+ 370 (5) 239 1212
E-mail	zum@zum.lt
Website address	http://www.zum.lt
Contact person	Vytautas Paršeliūnas
Telephone number	+ 370 (5) 210 0522
E-mail	vytautas.parseliunas@zum.lt
Contact person substitute	Palmira Petniūnienė
Telephone number	+ 370 (5) 210 0525
E-mail	Palmira.Petniuniene@zum.lt

- **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

- - The coordinating structure has changed since 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.
 - National data sharing has been significantly improved in 2016-2019 (over 160 new datasets added to sharing at the LSI portal). The pace of INSPIRE data sharing slowed down in 2019 because of the new governmental policy that foresaw a massive reorganization of both Ministry of Agriculture (moving to another location in Lithuania) and state enterprises (joining GIS-Centras with other two state enterprises that are fully agriculture-oriented). The changes resulted in losing competent experts and in overall uncertainty that had bad impact on public image and role of the responsible institutions. Rejected by the parliamentary committee in 2019, the plans of reorganization seem to be postponed for an undefined period of time and the situation is returning to normal.
 - Due to similar reorganizations in many data provider organizations some data providers changed their data sharing policies that resulted in stopping some services. Correspondingly, the procedures of amendments to legal acts regulating spatial data sharing became slower and communication with the data providers less efficient. On the other hand, overall number of data providers increased from 43 in 2016 to 54 in the end of 2019.
 - New surveying and engineering infrastructure information system is in process of implementation for local authorities' large scale information exchange. In 2021, full access to the large scale data of topographic and engineering information for entire Lithuania is anticipated. The data will be consistent and conformant to a single scheme that will allow for launching INSPIRE services in the future.
 - 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.
 - New projects of extension of the LSI portal using EU structural funds was started by GIS-Centras and is in its second year of implementation (2018–2021). Upon termination in March 2021 all data themes of the Annexes II and III will be covered with fully compliant INSPIRE data sets and services.
 - 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.
 - More of existing datasets, among them priority datasets, have been identified and included in the amendment to the Resolution of Lithuanian Government of 13 October, 2010, No. 1460 that has been adopted in 4 March, 2020. All organizations are legally obliged to provide the newly listed datasets for sharing. It will significantly improve the coverage of the INSPIRE themes and priority datasets.
 - During the reporting period of 2016–2018, targeted communication and events were organized to focus on INSPIRE implementation: an information brochure on the LSI portal in the Lithuanian and English was distributed, specialised press events organized and numerous meetings took place with concerned organisations. In 2019, as a

part of intense communication campaign, five information workshops have been organized in different regions of Lithuania.

- 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 25 state and business information systems have been created.

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 shall also liaise and exchange 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 (7 to 30 % yearly, depending on indicator). At the end of 2019 total number of provided services reached 4,45 million and the number of registered users exceeded 20 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 17% 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 2016–2020 eight administrative electronic services have been launched and developed. 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 growth in the service offering and the use of the LSI in 2016-2019 was much higher than expected.
- In the reference period, the highly demanded data on address points and cadastral parcels became open for unlimited viewing, but their use is limited by a high price set for the download service by the data provider. There are plans to open address data by summer 2020 - unlimited availability of the address data would result in yet higher usage of the infrastructure. National reference base cadastre is already available free of the charge, also for commercial purposes that makes LSI services more attractive not only in Lithuania, but worldwide.
- Environmental monitoring and impact assessment data provided via the LSI portal was still low, mainly due to the inertia

of the responsible organisations. In 2019, actions have urgently been taken in response to the letter from the Commission regarding the problems of identification and provision of priority datasets in Lithuania. In the end of 2019, 75 priority datasets were documented and 66 made available for download in the INSPIRE geoportal. 26 priority datasets have been identified, that would be made compliant with the INSPIRE data specifications and provided in 2020–2021.

- 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 for the same information contents.

Indicator	End of 2015	End of 2018	End of 2019
Registered users	9116	17976	20 000
Total No. of services provided	1,312 Mio	3,208 Mio	4,45 Mio

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.
- 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. 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.
- 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 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:

- Ad hoc Project costs for the implementation of INSPIRE network services, metadata and spatial data sets in the LSI.
- Annual maintenance costs for the LSI portal covering the following categories:
 - Hardware maintenance costs (around 30 % related to INSPIRE),
 - Software maintenance costs (around 50 % related to INSPIRE – reduced by introduction of open source technology),
 - Maintenance work costs (around 30 % related to INSPIRE),
 - Monitoring and reporting costs (around 70 % related to INSPIRE).

Year	LSI Ad hoc projects (EU structural funds and State budget co-financing)	LSI hardware and software maintenance, labour costs, publicity; (State budget)

2009	17.539,25 ltl LT (EUR 5079718)	
2010		
2011	1290 ltl LT (EUR 373610)	900 ltl LT (EUR 260658)
2012	1.232,50 ltl LT (EUR 356957)	900 ltl LT (EUR 260658)
2013	4.593,06 ltl LT (EUR 1330242)	900 ltl LT (EUR 260658)
2014	2.730,20 ltl LT (EUR 790720)	900 ltl LT (EUR 260658)
2015		252000 EUR
2016		278.000 EUR
2017		276.000 EUR
2018	228.813 EUR	391.000 EUR
2019	786,600 EUR	391.000 EUR

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 EUR 2500 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 EUR 3000 per year.
- monitoring and reporting (from 0 to EUR 700 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 (i.e. it is likely that they would not have been achieved without the Directive). These are, of course, 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, define data sharing practices and procedures and move more information and services online.
- The Directive creates an obligation to provide metadata, i.e. inform 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 prepared, 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 generated at the national level as a result 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 Infrastructure identified **savings** of around 20.000 working days. In terms of average wages in the sector in Lithuania, this amounts to **EUR 1,2 million**.
 - During the reporting period following the implementation of the further development of the LISI development project, **the socio-economic benefits have been assessed** from LTL 3,1 million (EUR 0,9 million) in the year 2014 to an average of **1,8 million euros annually**.
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

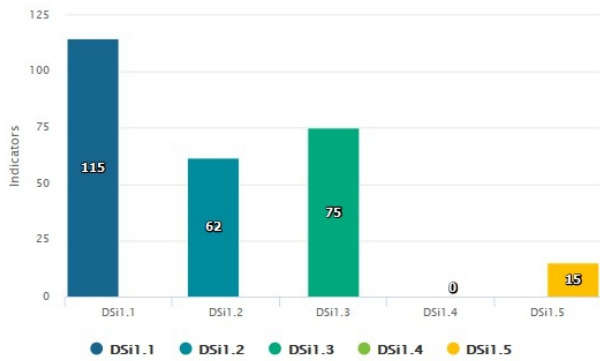
Lithuania

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

Graphs generated with data taken from: https://inspire-geoportal.ec.europa.eu/mr2019_details.html?country=lt

The date of harvest metadata: 16/12/2019

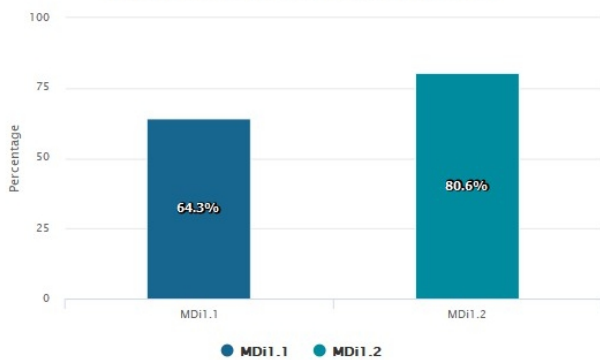
Monitoring of the availability of spatial data and service



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

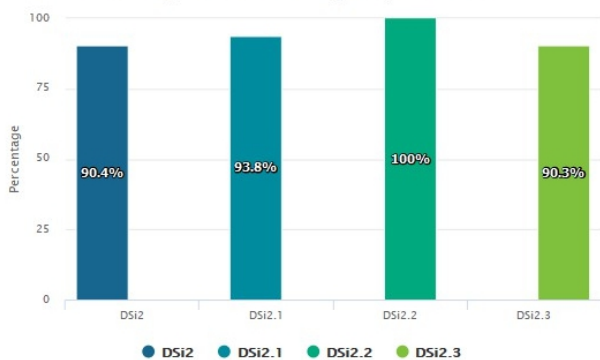
Monitoring of the conformity of metadata



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

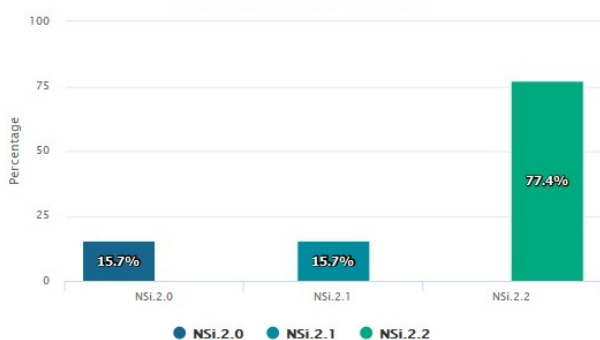
Monitoring of the conformity of spatial data sets



Legend

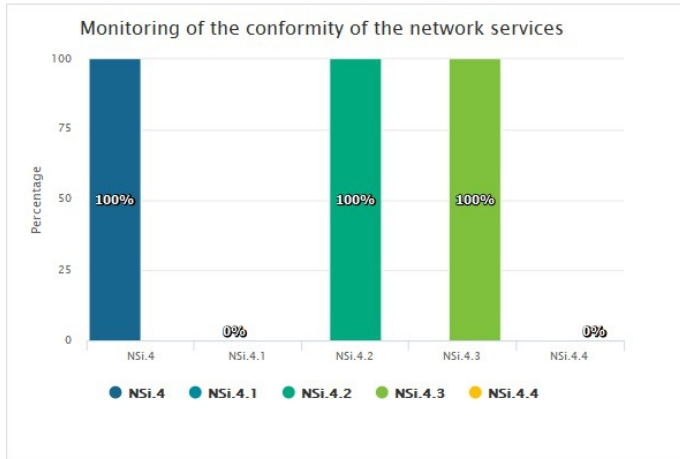
Indicator	Definition
DSi2	Percentage of spatial data sets that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets
DSi2.1	Percentage of spatial data sets, corresponding to the themes listed in Annex I, that are in conformity with Commission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

Monitoring of the accessibility of spatial data sets through view and download services



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