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

Coordination

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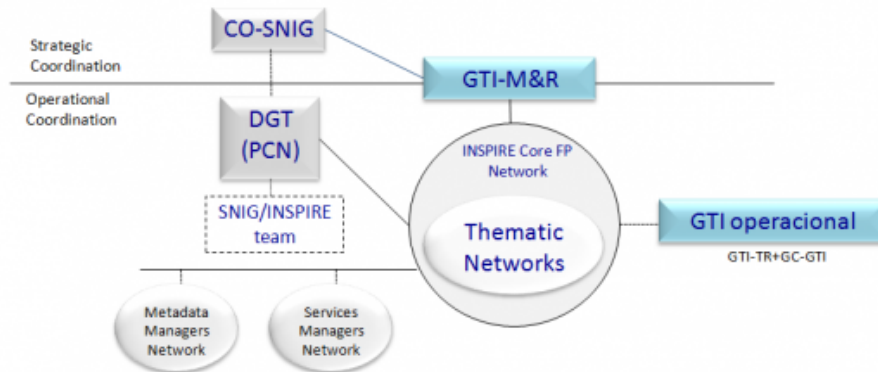
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Coordination Structure & Progress:

- DGT represents Portugal at IC, MIG and MIG-T since the beginning but since 2018 these representations were enlarged to some other public authorities, namely Portuguese Environmental Agency (APA), National Statistics Institute (INE) and Azores Autonomous Region (RAA).
- CO-SNIG (*Conselho de Orientação do SNIG*) is responsible for the strategic coordination of the National Spatial Data Infrastructure (NSDI), i.e. *Sistema Nacional de Informação Geográfica* (SNIG). This committee is chaired by DGT and co-chaired by APA and includes all the entities identified as responsible for the datasets embraced by INSPIRE Directive.
- Networks: SNIG Network (the SNIG Network covers all public and private entities that produce and provide geographic data sets and services.); INSPIRE Focal Points Network (public authorities producing national data sets and services); INSPIRE Core Focal Points Network (a sub-set of the previous one with the public authorities formally responsible for producing national datasets and services regarding the themes of the three INSPIRE Annexes); Network of Metadata Managers and Network of Spatial Data Services Managers.
- Working Groups (WG): M&R WG, a CO-SNIG sub-group dedicated to support INSPIRE monitoring and reporting, since 2010. GTI-Op, operational group that includes technicians from various entities with extensive experience in technical and thematic matters related to the INSPIRE directive, as well as the coordinator of the M&R WG. 9 Thematic Networks associated with the INSPIRE Themes clusters (the previous 9 GTI-TE).
- GT-Local, a working group involving the inter-municipality's communities (CIM).

Progress

- Annual Action Plans for implementing SNIG 2020 – during 2019, entities were dedicated to the creation and improvement of their metadata and spatial data services.
- Continue to increase the Portuguese representativeness at European events and meetings on SDI and INSPIRE, through the involvement of some other entities from INSPIRE Core Focal Points Network in European groups as well as their participation in the capacity building events - participation in MIG and MIG-T meetings as well as in some of the sub-groups (e.g. MIG subgroup 2016.5).
- As INSPIRE NCP, DGT gave feed-back on the proposal for the Adoption PE-CONS 8/19 "Regulation on the alignment of the environmental reporting obligations"/Projeto de *REGULAMENTO DO PARLAMENTO EUROPEU E DO CONSELHO relativo à harmonização das obrigações de comunicação de informações no âmbito da legislação no domínio do ambiente e que altera os Regulamentos (CE) n.º 166/2006 e (UE) n.º 995/201*.
- As INSPIRE NCP, DGT commented the proposal for the Commission implementing decision C(2019)6026 final, 19/08/2019, on implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting.
- Involvement of GTI-Op (and the INSPIRE CORE Focal Points Network) in some of the INSPIRE key issues: progress on the availability of priority datasets (PDS); services interoperability with INSPIRE Geoportal; increase the publication of spatial data services (through the Network of Spatial Data Services Managers); collaboration among the entities for data harmonization – Região Autónoma dos Açores (RAA) provided the app-schema of harmonized themes (RAA) and other technical notes.
- Information dissemination to GTI-Op on INSPIRE validator and new monitoring and reporting Regulation.
- Organization of ENIIG 2019 - *Encontro Nacional de Infraestruturas de Informação Geográfica* (<http://eniig.dgterritoio.pt/inicio>), the annual event on SDI, which took place in Porto on July, 4, 2019 addressing issues related to the production of geographic information and how it can be made available to users through spatial data infrastructures. The new SNIG geoportal was presented to the GI community in this event, which also included the new

legal framework that establishes the principles and rules to which cartographic production must comply and the new technical specifications for national topographic cartography. Moreover ENIIG counted also with the presentation of the new orthophoto coverage for mainland Portugal, produced from the 2018 digital aerial photography coverage, acquired by the Agriculture and Fisheries Financing Institute, I. P. and financed by the Permanent Forest Fund.

1. Capacity building activities provided at the European level were internally followed by PT INPIRE structures members namely: The new Linkage checker tool, a web application that is used in the context of supporting MS data providers with publishing their resources (Data Sets / Services) in the INSPIRE Geoportal. It cannot be considered as a full INSPIRE compliance test. For checking the compliance with INSPIRE Technical Guidelines, only the INSPIRE Reference Validator should be used.
2. The New INSPIRE Reference Validator release version available 1.0.8, new official release (v.1.0.8) of the INSPIRE Reference Validator, which includes the new tests for INSPIRE WCS and SOS Download Services and for INSPIRE Discovery Services; it also includes a number of bug fixes and enhancements.
 - Cooperation with Spain: continued collaboration on the organization of the Iberian SDI event, JIIDE, and participation in cross-border projects and initiatives.
 - Articulation of SNIG with thematic and regional SDIs (e.g. SNIG-SNIMAR and SNIG-IDEIA metadata catalogues harvesting process).
 - Promoting the involvement of the Local data producers/Local SDIs in INSPIRE implementation and national SDI development.
 - The Working Group involving the municipality's communities, GT-Local, was endorsed by CO-SNIG. This working group is already formally constituted. All entities have already appointed their representatives. The first meeting of this working group will take place shortly.
 - The integration of the regional and local level in all the SNIG and INSPIRE coordination activities is foreseen during the next implementation phase. This integration will be done through the referred Working Group that involves the municipality's communities.
 - Articulation of SNIG with the open data portal, <https://dados.gov.pt/pt/> was performed. DGT is already at AMA through SNIG.
 - The collaboration of DGT staff in activities with universities continued, e.g. teaching SDI issues in Master degrees (e.g. Masters on Geospatial Information from University of Lisbon).
 - New technical specifications for the Portuguese reference cartography were produced, taking into consideration the INSPIRE themes specifications. These new technical specifications were formally published on July 2019.

Functioning and coordination of the infrastructure

- The new SNIG geoportal, available since March 2019, was officially launched on July 4, 2019, during the ENIIG 2019, adopting an Open Source solution and a renewed interface design. New functionalities were created and the existing ones were improved. The National Metadata Catalogue was significantly enhanced. The new SNIG geoportal formalized also the National Register for Geographic Data (RNDG).
- Continuation of metadata revision by the INSPIRE Core Focal Points Network entities to improve search and access to the GI through the geoportal and to complete metadata with missing information. Metadata 2.0 is not yet fully adopted.
- INSPIRE Core Focal Points Network continues working on priority datasets: (1) Code list translation was performed with the coordination of APA and the collaboration of the other entities involved in PDS and a proposal was opened in the Central INSPIRE registers and register federation; (2) tagging the PDS metadata; (3) Participation of APA and DGT in the WebEx meetings of the MIG subgroup 2016.5 on "priority datasets for eReporting": 13 June, 26 November 2019, and provision of comments on the meetings' minutes; (4) Correction of compliance errors that prevent the recognition of the PDS services by the geoportal INSPIRE.
- The considerable investment in the production of services continued to be reinforced during the 2019 period.
- Not all the services are accessible through the INSPIRE Geoportal due to interoperability problems involving both proprietary and open source solutions. Efforts were devoted by INSPIRE Core Focal Points to surpass the difficulties occurring in relation to spatial data services interoperability. PDS identified in the INSPIRE Geoportal are not yet all available through interoperable download services. Issues occurred with the different SW used.
- Production of the "Settings for INSPIRE interoperability Guide" – a guide created to support the entities due to the high number of questions and doubts regarding the INSPIRE interoperability. The support guide addresses the main topics to be taken into account when filling out the SDS&S metadata sheets and the metadata incorporated in the SDS. This Support Guide did not avoid reading the documents published by the EC, namely the Technical Guidelines and the document "Geoportal workflow for establishing links between data sets and network services" and the possibility of requesting help to the Helpdesk of the Geoportal INSPIRE. The software used in the examples given in the Guide were the GEMA Metadata Editor and the GeoServer and it is considered that the metadata files are hosted in SNIG.
- The New Linkage checker tool and the ETF Validator were disseminated for use by RPF INSPIRE CORE entities to verify interoperability and validate metadata and services.
- INSPIRE monitoring process in 2019 – entities were informed that the next monitoring was going to be carried out on

December 15, 2019, by the EC, fully automatically based on the information taken from the SNIG INSPIRECORE metadata. Efforts were developed to promote the compliance of metadata and services and a timetable for INSPIRE 2019 Monitoring was followed. Contacts with the EC were performed to clarify several issues due to the new procedure. Several harvesting processes occurred and the entities tried to correct the interoperability problems with the support of DGT and INSPIRE HELPDsk. Meetings with the different structures were performed to promote the development of efforts by the entities, presenting the new M&R procedures, its implications, the EC recommendations on SDS&S metadata, the foreseen periodic harvestings, and the INSPIRE Executable Test Suites validator. Several interactions with the entities occurred until the dead-line, aiming to show the progresses on solving the problems to reach the metadata compliance and data and service interoperability. Harvesting of monitoring metadata occurred in 16 December 2019. Results are available at INSPIRE Geoportal <https://inspire-geoportal.ec.europa.eu>.

- Effective creation of the group GT-Local occurred in the end of 2019, the working group involving the municipality's communities which creation was formally decided by CO-SNIG on the previous INSPIRE period.
- ISA (Interoperability solutions for public administrations, businesses and citizens) developments to support the efforts for connecting with eGovernment still need to be more explored in connection with *Agência para a Modernização Administrativa* (AMA).
- Workshops and other events on the new data specifications. In 2019 DGT held five regional events in collaboration with the Regional Development and Coordination Commissions (CCDR) and the National Association of Portuguese Municipalities (ANMP). These events took place in the cities of Coimbra, Porto, Lisbon, Évora and Faro and aimed to present the new legal framework for cartography and to disseminate the most recent developments in the new standards and technical specifications for the Portuguese reference cartography, published on July 2019.
- ENIG 2019 took place in June 2019, centered on new SNIG geoportal.
- Participation in JIIDE 2019 in *Cáceres* – DGT presented two communications: "National Register for Geographic Data and the new SNIG geoportal" and "INSPIRE Directive Implementation in Portugal - The state of play" and participated also in the round table: "Local SDIs: Challenges and opportunities."
- Submission of abstracts to INSPIRE Conference 2020: "Access to Geographic Information in Portugal: INSPIRE Directive impact" and "The New Portuguese National Spatial Data Infrastructure Geoportal" as well as one on Cross-Forest project.
- National strategies for managing spatial data, their use and linking with other national data are following the INSPIRE Directive principles.
- Technical constraints - SDI development and INSPIRE implementation in Portugal in 2019 continue to show the same type of technical constraints namely:
 1. Responsibilities on the provision of spatial data essential for the SDI are not clearly defined through the legislation;
 2. Articulation between the entities technical implementation departments and the entities Head Offices is not easy - awareness was and is still needed;
 3. The lack of qualified human resources in the public entities needed to cope with all the technical requirements involved in SDI & INSPIRE implementation: metadata creation, spatial data services development, data harmonization;
 4. Open source and proprietary software are not yet prepared to deal with some of INSPIRE interoperability specifications creating interoperability issues that generate problems on accessing data and services through the INSPIRE Geoportal (Thematic and Priority Datasets viewers);
 5. The harvesting procedures from INSPIRE Geoportal to SNIG should have been more frequent to allow testing of spatial data services access through the INSPIRE Geoportal Viewers and the solving of the remaining problems;
 6. Complexity of data harmonization specifications generate difficulties on using data harmonization tools to obtain validated harmonized datasets;
 7. The lack of articulation among EC DGs and with the European Environmental Agency (EEA) around INSPIRE issues, creates additional difficulties for INSPIRE implementation at the Member State level;
 8. The location of Azores, Madeira and Extension of the Continental Shelf Platform do not allow the use of the ETRS89, which conditions the existence of national spatial data sets;
 9. Some public entities do not have the information systems infrastructures (e.g. servers, software) to provide access to its data.

Planned actions include:

- Continue to improve the implementation of the SNIG geoportal, considering technological evolution and users feedback;
- Metadata completeness, namely in what concerns data policies clear identification and progressing in the adoption of the Metadata 2.0 regulation;
- Continue to increase interoperable spatial data services availability and level of implementation, namely the interoperability with the INSPIRE Geoportal;
- Continue to give special attention to PDS and its publication;
- Increase the availability of data from regional and local public entities through SNIG;
- Promote SNIG Usability testing;
- Promote the use of the SNIG geoportal, through the organization of sessions devoted to different types of users around the country, where examples of using SNIG for different purposes are presented and discussed;
- Promote data harmonization according to INSPIRE data specifications;
- Increase articulation with eGovernment;

- Increase the use of the Linked Open data (LOD) approach to enrich the SDI data;
- JIIDE 2020, XI Jornadas Ibéricas de Infraestructuras de Datos Espaciais (JIIDE), that will take place on 28 - 30 de october de 2020 in Évora. 2020 edition will have as main topic the contributions to the development of a low carbon economy.

Usage of the infrastructure for spatial information

- Increased involvement of data producers and users on the national SDI, which results on a higher number of metadata on officially approved cartography and territorial management instruments (IGT).
- New SNIG geoportal interface promoting the increased access to the data provided by SNIG.
- SNIG site is used to provide different types of information to SNIG users and GI community (e.g. news on events, documents, technical sessions...).
- Modernization of regional public administration, producing data and metadata according to INSPIRE specifications, improving the technological infrastructures (e.g. hardware, communication) available and increasing capacity building.
- Increased availability of spatial data services providing access to spatial data usable for different applications.
- National SDI provides relevant information to the development and monitoring of the National Program for Spatial Planning Policy (PNPOT).
- Integration of several regional thematic issues.
- Participation in European projects related to SDI e.g. IP-Sentinel.
- Participation in cross-border projects: Cross-Forest (CEF-Telecom) involving linked-open data approaches and INSPIRE specifications.
- Practical examples of cross-border cooperation with neighboring country continued to be carried in the scope of geology, flood protection, biodiversity preservation and forest fires modeling and prevention.
- ENIG 2019 evidenced that the new SNIG geoportal was well received by the users.
- Planned actions include:
 - Support the use of INSPIRE spatial data sets for eReporting, continuing to increase the communication between the INSPIRE and environmental reporting communities;
 - Promote the use of the national SDI by specific users and projects, namely to support public policies and environmental directives application;
 - Promote the collaboration between public entities around the use of SNIG and its data, through specific activities of common interest;
 - Support/promote the use of INSPIRE spatial data sets for other uses and communities.

Data sharing arrangements

- Promote the definition by public data producers, of a clearly defined data policy supported on the existing good practices (e.g. Report "Evaluation and Assessment of INSPIRE Directive 2007/2/EC Data Sharing between Public Authorities and Public access and Use provisions);
- Promote the documentation of the spatial data - an effort to include data policies in the metadata was developed by the public entities.
- Promotion of open data approach was followed during 2019, as well as the delivery of data through spatial data services;
- Communication/promotion actions referring to data policies were developed or included on existing events.
- Promote the open availability of more datasets free of charge.
- DGT is signing several protocols with the Local Public Administration to ensure that the majority of the spatial data to be obtained in the future will have an "Open data policy" and be completely open to all users.
- DGT started to provide access to Land Cover/Land Use (LC/LU) National data free of charge. In 2019 DGT decided that the 2018 national coverage of orthophotos would also have an open data policy.
- In 2019, DGT defined the requirements for the implementation of a National Cartographic Database which will integrate all core spatial data produced at scales 1:10 000 and higher in Portugal. This database, defined in DL 130/2019, is part of a strategy for the development of a national infrastructure to assemble all core spatial information (e.g. hydrography, altimetry, transports, orthophotos) produced in Portugal in one single spot. The implementation of this infrastructure is being carried out in partnership with all national entities which produce core spatial data, mainly the local public administration. The governance of this infrastructure will be shared between DGT and other spatial data producers, ensuring an effective use of spatial data by all Portuguese public administration.
- Planned actions
 - Study on the licensing model for SNIG to support the definition of a simplified license model for data sharing within SNIG.
 - Discuss the creation of a specific legal basis for Public Administration in Portugal establishing a simplified agreement for GI sharing, without access and use restrictions, free of costs, foreseeing the development of public nature tasks.
 - Continue to promote the access to GI data free of charge.

Costs and benefits

- No significant evolution occurred on cost/benefit analysis: obtaining comparable and coherent values from different public

entities is still not possible.

- Diversity and heterogeneity is verified on the costs among public administration for set-up, implementation, conformity test of each component - metadata production, data interoperability, services, coordination and horizontal measures; maintenance costs are more homogeneous.
- Not yet possible to present quantitative benefits, but INSPIRE is having an important role on the increased availability of spatial data and on the development/use of open data policy which is being promoted at CO-SNIG and through the INSPIRE Core Focal Points Network.
- Benefits on accessing/sharing duly documented data, between public administrations at all levels and across sectors, and also with Universities, Private sector & Citizens are registered.
- Much more spatial data continues to become available free of charge (e.g. COS2018, orthophotos2018, National Forestry Inventory 2015).
- Need for financing sources to support SDI development: an increased effort must be done to identify them and there is a GTI-Op activity that is focused on this issue.
- Project DIPIGeo, funded by the Portuguese Agency for the Administrative Modernization (AMA), supports SNIG & INSPIRE activities at DGT.
- National Statistics Institute, Hydrographic Institute, Azores Autonomous Region are also developing projects funded by AMA to promote the development of spatial data infrastructures and to foster INSPIRE implementation.
- Planned actions include:
 - Organize procedures in cooperation with the data producers to obtain financial support for the implementation of SNIG and for the activities of the network entities;
 - Discuss a framework to assess costs and benefits of SDI implementation & maintenance and start to implement it (both at horizontal and entities level).
 - Continue to explore DIPIGeo in new developments on INSPIRE and SNIG.

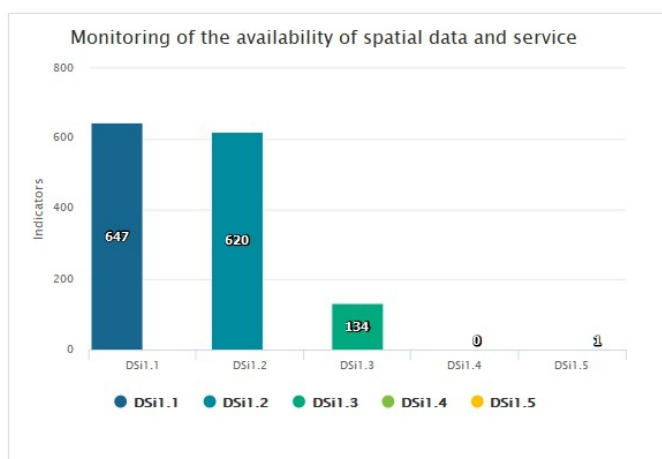
Key facts and figures

Portugal, Portuguese Republic

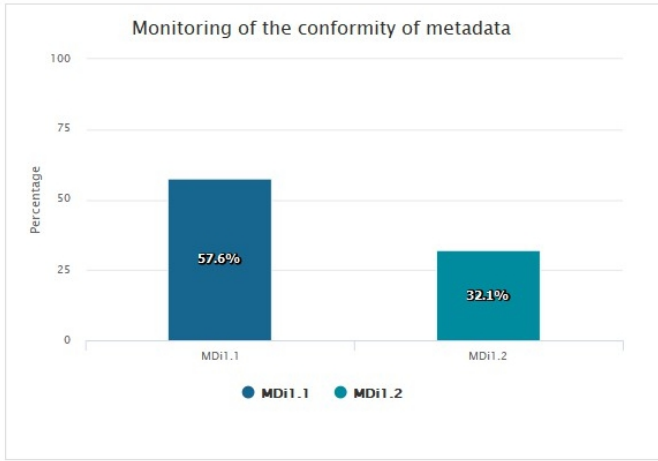
Indicators in support of [Commission Decision \(EU\) 2019/1372](#) implementing Directive 2007/2/EC (INSPIRE) as regards to monitoring and reporting

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

The date of harvest metadata: 16/12/2019

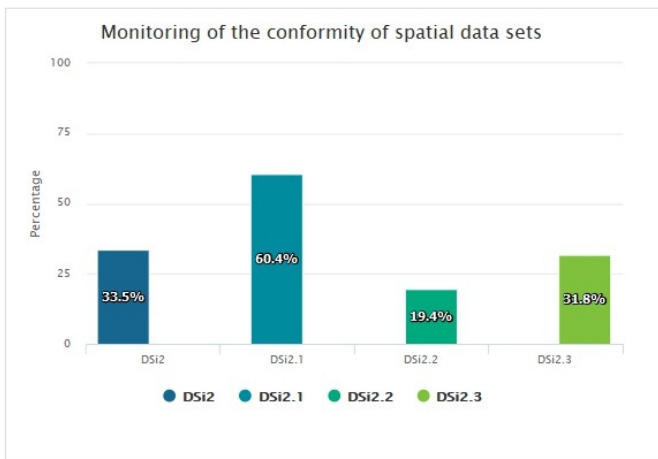


Legend	
Indicator	Definition
DSi1.1	The number of spatial data sets for which metadata exist
DSi1.2	The number of spatial data services for which metadata exist
DSi1.3	The number of spatial data sets for which the metadata contains one or more keywords from a register provided by the Commission indicating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



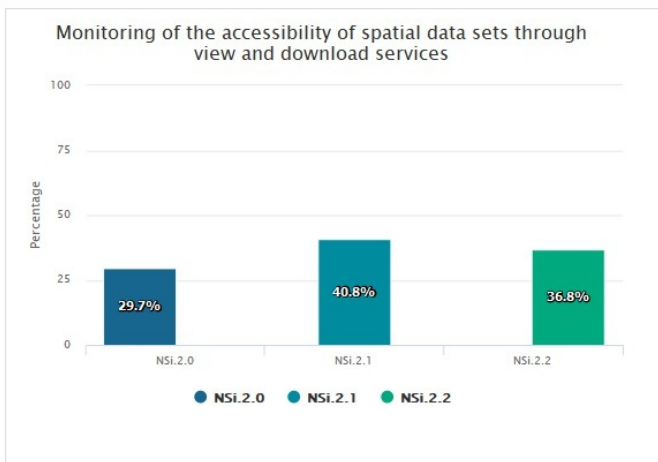
Legend

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



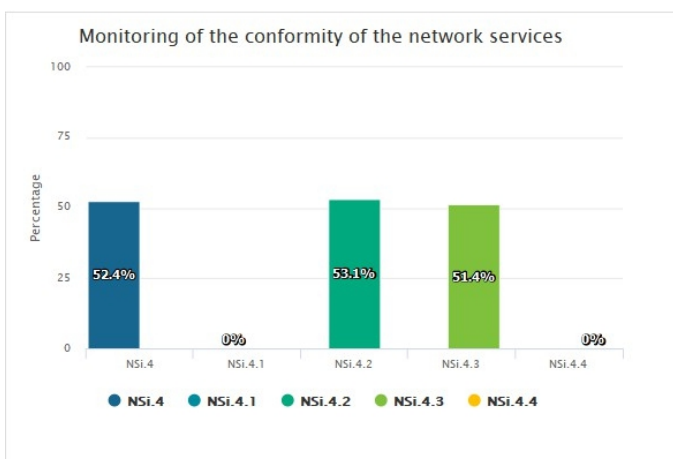
Legend

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

