



# Status of implementation of the INSPIRE Directive – 2016 Country Fiches

## COUNTRY FICHE Germany

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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 DECISION regarding INSPIRE monitoring and reporting](#) on the 5th of June 2009.

This country fiche highlights the progress of Germany in the various areas of INSPIRE implementation and presents an outlook of planned actions for further improvement of the INSPIRE implementation. The country fiche includes information **until May 2016** as a summary of the information acquired through:

- the 2016 [tri-annual INSPIRE implementation report](#),
- [monitoring report](#) in May 2016,

- a [bilateral meeting](#) on the implementation of the INSPIRE Directive between the Commission and Germany representatives.

## 1. State of Play

A high-level view on the governance, use and impact of the INSPIRE Directive in Germany. More detailed information is available on the [INSPIRE knowledge base](#).

The content of the chapter is tagged according to 5 criteria of better regulation:

- **[Effectiveness]** How successful has the INSPIRE implementation been in achieving, progressing towards its objectives; progress made, gaps, what factors have influenced or why it has not yet been achieved regarding availability of services, data interoperability, sharing, data policy obstacles
- **[Efficiency]** Costs (numbers or difficulties to evaluate them); benefits (qualitative or quantitative) already visible.
- **[Relevance]** Is it still relevant to make data interoperable, remove obstacles of data sharing, drive collaboration between public services, necessary for National SDI, use cross-sector, requested by eGovernment, modernisation of public admin, etc.; support given by National Institutions for implementation
- **[Coherence]** Internal coherence of INSPIRE provisions proved by implementation; cross-border applications; coherence with other National and EU policies
- **[EU-added value]** Improvement of EU cross-border data management and use; use for environmental monitoring and reporting, use for and with Copernicus data; use cross-sector.

### 1.1 Coordination

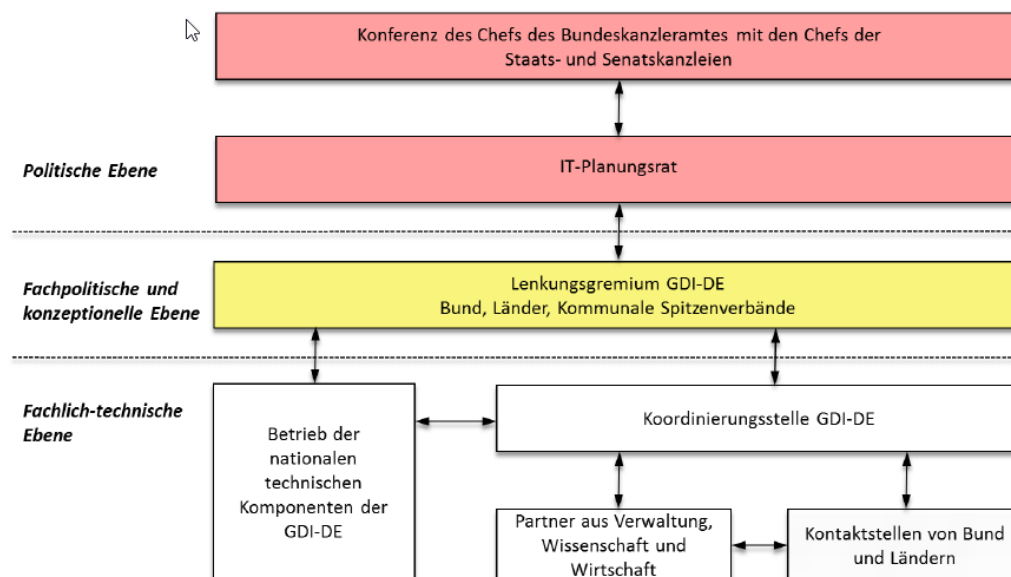
- National Contact point

Name of the public authority	Lenkungsgremium GDI-DE
Contact information:	
Mailing address	<p><b>Lenkungsgremium GDI-DE – Vorsitz 2015/2016</b>            Dr. Friedrich Löper            Bundesministerium des Innern            Referat O7            Alt-Moabit 140            10557 Berlin            Germany</p> <p><b>Koordinierungsstelle GDI-DE</b>            Dr. Martin Lenk            Bundesamt für Kartographie und Geodäsie            Richard-Strauss-Allee 11            60598 Frankfurt am Main            Germany</p>
Telephone number	+49 30 18 681 11387
Telefax number	+49 30 18 681 5 11387
Email address	<a href="mailto:Vorsitz-LG@gdi-de.org">Vorsitz-LG@gdi-de.org</a>
Organisation's website URL	n/a
Contact person	Dr. Friedrich Löper
Telephone number	+49 30 18 681 11387
Email address	<a href="mailto:o7@bmi.bund.de">o7@bmi.bund.de</a>
Contact person - substitute	Dr. Martin Lenk

Telephone number	+49 69 6333-300
Email address	<a href="mailto:martin.lenk@bkg.bund.de">martin.lenk@bkg.bund.de</a> <a href="mailto:mail@gdi-de.org">mail@gdi-de.org</a>

- Coordination Structure

- Germany's spatial data infrastructure (GDI-DE) is coordinated jointly by the federal level, the Länder and municipalities. Its central bodies are:
  - the steering committee (Lenkungsgremium GDI-DE)
  - the coordination office (Kordinierungsstelle GDI-DE) and
  - the Federal Agency for Cartography and Geodesy (Bundesamt für Kartographie und Geodäsie, BKG), which operates the national technical components of the GDI-DE (the geodata catalogue, geoportal, registry and validation tools).
- Cooperation with the private sector is ensured through the Commission for GI industry (Kommission für Geoinformationswirtschaft, GIW) and its head office ([www.geobusiness.org](http://www.geobusiness.org)). (until 31.12.2016)
- Representatives of academia are also represented in the steering committee as observers.
- On request of the conference of environmental ministers (Umweltministerkonferenz, UMK), a new working group of the steering committee on GDI-DE has been established with the aims to:
  - contribute the view point of the UMK working groups to the further development of the GDI-DE
  - coordinate the further development of INSPIRE and other environmental thematic legislation.



- Progress

- The structures already established by 2013 have proven to be successful and will be continued based on the renewed administrative arrangement between the federal state and the Länder for the creation and operation of the GDI-DE. **[Effectiveness]**
- In addition, the INSPIRE working group set up on request by the UMK is helping to strengthen the concerns and input of environmental politics, administration and academia into the GDI-DE. Similar measures are planned for the cooperation with other thematic areas. **[Effectiveness, Coherence]**
- The integration into „Maintenance and Implementation Framework“ has led to a closer cooperation with other Member States. **[EU-added value]**
- The cooperation between different administrations has been improved through the creation of a web-based collaboration platform. **[Efficiency]**

## 1.2 Functioning and coordination of the infrastructure

- INSPIRE is now embedded in the National Spatial Data Strategy (Nationale Geoinformations-Strategie, NGIS) adopted by the steering committee GDI-DE in 2015 and presented to the policy-making bodies, which welcomed the strategy, acknowledged it as an important addition to the National E-Government

Strategy and promised to help carry it out. The strategy shall ensure that spatial information can be effectively used for all spatially relevant decision making processes, including to serve local and national interests. The strategy identifies three key principles such as 1. Supply with basic quality assured spatial data, 2. Foster the multiple use of spatial data and 3. Promote innovations in spatial data management. **[Coherence]**

- The coordination of the infrastructure has been further improved through
  - intensified discussions with the GI industry, the coordination body of municipalities and thematic conferences of ministries;
  - new working groups on SDIs/INSPIRE under the thematic conferences of ministries;
  - a growing number of workshops with INSPIRE points of contact. **[Effectiveness]**
- To facilitate data and service sharing and use, a joint architecture concept has been developed, based on the INSPIRE Directive, IRs and TG documents. National technical components of the GDI-DE include a geodata catalogue (Geodatenkatalog.de), geoportal (Geoportal.de), registry (GDI-DE Registry) and validation tools (GDI-DE Testsuite). **[Coherence]**

### 1.3 Usage of the infrastructure for spatial information

- Both public administrations and the private sector are still not widely using the INSPIRE infrastructure to access and use spatial data, mainly because their public tasks are at the local or regional level. **[Effectiveness, Relevance]**
- The documentation of spatial data sets and services through metadata has however made people more aware of the spatial data available in the public administration and has thus improved data sharing and use through conventional methods or OGC services. It has also led to an increase in data being made available in digital form. **[Effectiveness, Relevance]**
- Some public administrations, in particular at the local level, are still struggling with implementing INSPIRE themselves, due to the perceived complexity of the INSPIRE rules and the related standards and technologies. **[Efficiency]**
- In addition, there are currently few products on the market that allow the processing of INSPIRE-conformant data, and such functionalities are only rarely required by users. There are therefore only few application examples that go beyond the state of a pilot study. **[Effectiveness]**

### 1.4 Data Sharing Arrangements

- Individual, bi- or multi-lateral data sharing agreements are increasingly being replaced by generic, legally based conditions for the access to public sector data. This is reflected in an increasing number of legislation on eGovernment, Open Data and transparency. **[Efficiency]**
- According to federal laws, environmental (UIG) and particularly for spatial data (GeoZG) are publicly and, for federal data, freely available. **[Effectiveness]**
- Selected spatial reference data of the Länder are provided (against payment) through a common national access point. **[Efficiency]**
- The main barrier for data sharing and use are not the existing data sharing arrangements, but rather the INSPIRE data models, some of which are perceived as too simple and some as too complex and not fitting the user requirements, as well as the lack of tools for using INSPIRE conformant data. **[Effectiveness]**

### 1.5 Costs and Benefits

- The investments in the creation and operation of the INSPIRE infrastructure have increased between 2013 and 2015 (e.g. the costs for the few national infrastructure components have been 50% higher than initially planned), not even considering the costs for the creation of the increasing number of INSPIRE compliant data and services by the relevant data providers. **[Efficiency]**
- A reliable evaluation of the cost-benefit ratio will only become possible, when INSPIRE compliant data and services are more widely available and used. **[Efficiency]**

## 2 Key Facts and Figures

In addition to the above mentioned issues, the implementation of INSPIRE Directive requires Member States to take four main steps in relation to management of spatial datasets which fall under the Directive:

- Step 1: Identify spatial datasets
- Step 2: Document these datasets (metadata)

- Step 3: Provide services for identified spatial datasets (discovery, view, download)
- Step 4: Make spatial datasets interoperable by aligning them with the common data models.

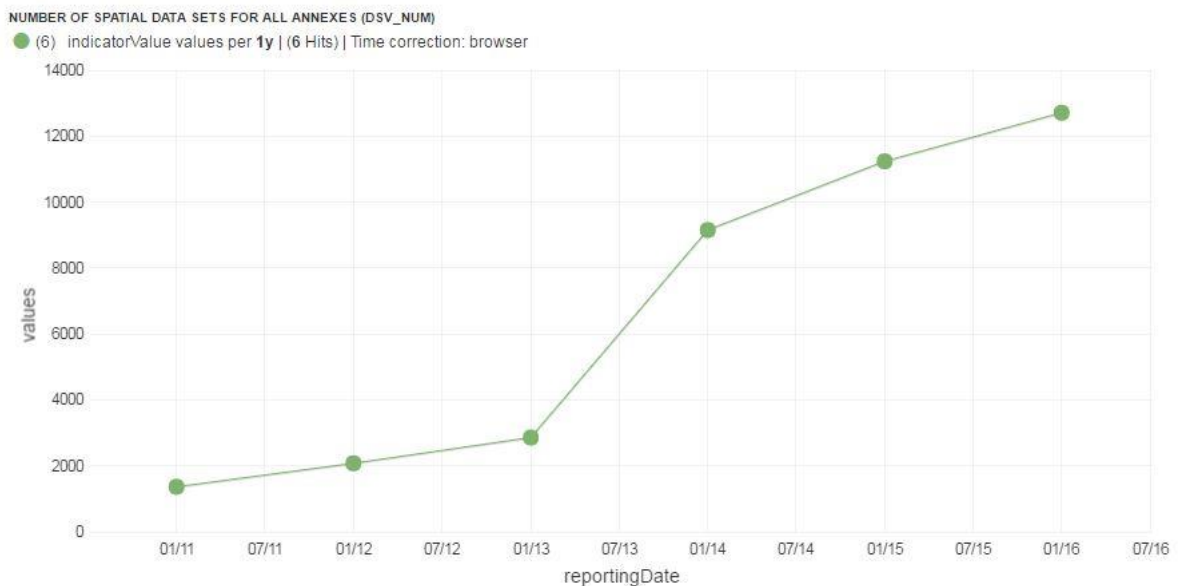
The key facts and figures presented in this country fiche are based on the information provided by Germany on the [INSPIRE dashboard](#). **The provided statistics is not reflecting the data available on [INSPIRE geoportal](#).** The INSPIRE geoportal is updated on a regular and ongoing basis, whilst the INSPIRE dashboard is typically updated after every reporting round, on a yearly basis.

The conformity of the implementation is assessed against the full set of legal specifications set out by the Directive and the Implementing Rules and the commonly agreed good practices set out by the technical guidelines.

## 2.1. Identification of spatial data with relevance to the environment (step 1)

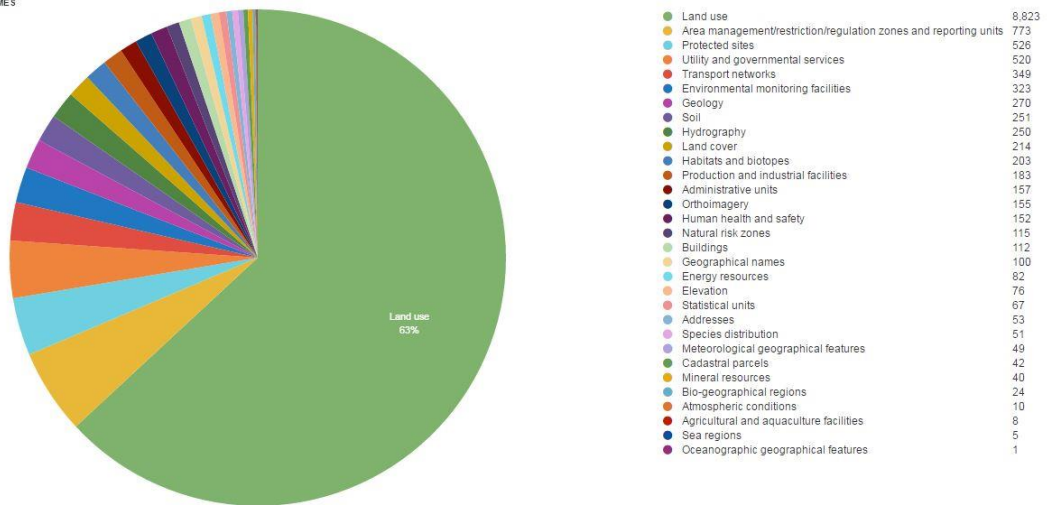
### a. Evolution of the data offering

DSv\_Num: number of spatial data sets for all Annexes



## b. Data sets made available per INSPIRE theme in 2015

NUMBER OF RECORD PER THEMES



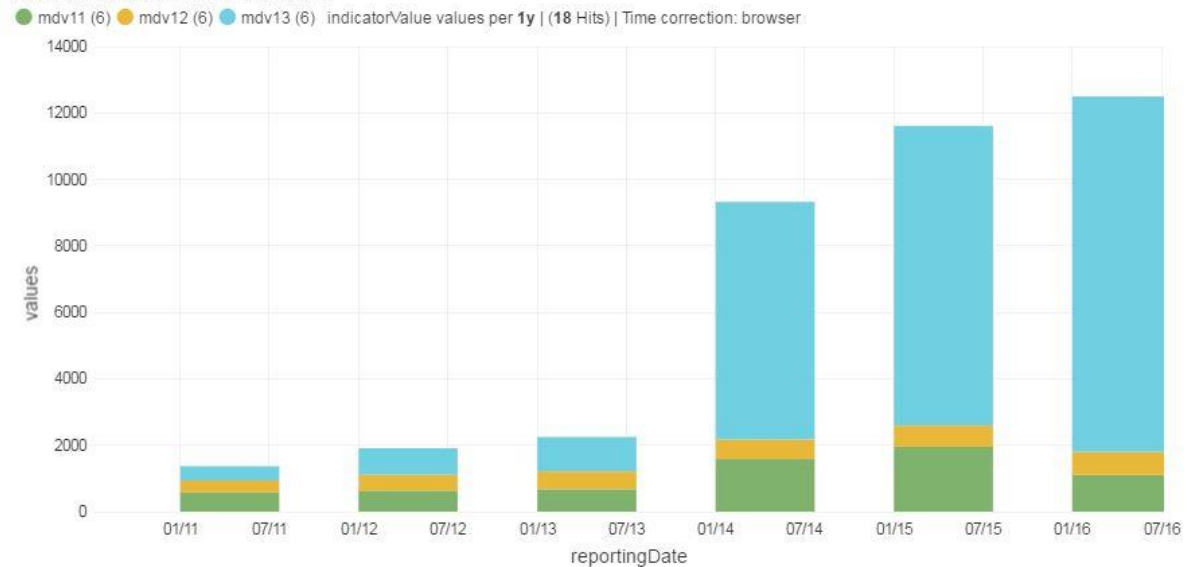
## c. Data sets per annex (Annex 1 & 2: spatial reference data; Annex 3: environmental spatial data)

MDv1.1 (green): number of spatial data sets for Annex I that have metadata

MDv1.2 (yellow): number of spatial data sets for Annex II that have metadata

MDv1.3 (blue): number of spatial data sets for Annex III that have metadata

NUMBER OF SPATIAL DATA SETS PER ANNEXES



### Evaluation of progress for step 1:

**Germany has identified a total of 12712 spatial data sets with relation to the themes listed in the INSPIRE annexes.**

Additional spatial data sets have been identified in period from 2014-2016, mainly under Annex III data themes and especially for Land Use. A lot of relevant spatial data sets have already been identified for the different data themes. However, the identification could further improve by identifying and documenting spatial data sets required under the existing reporting and monitoring regulations of EU environmental law.

## 2.2 Documentation of the data (metadata) (step 2)

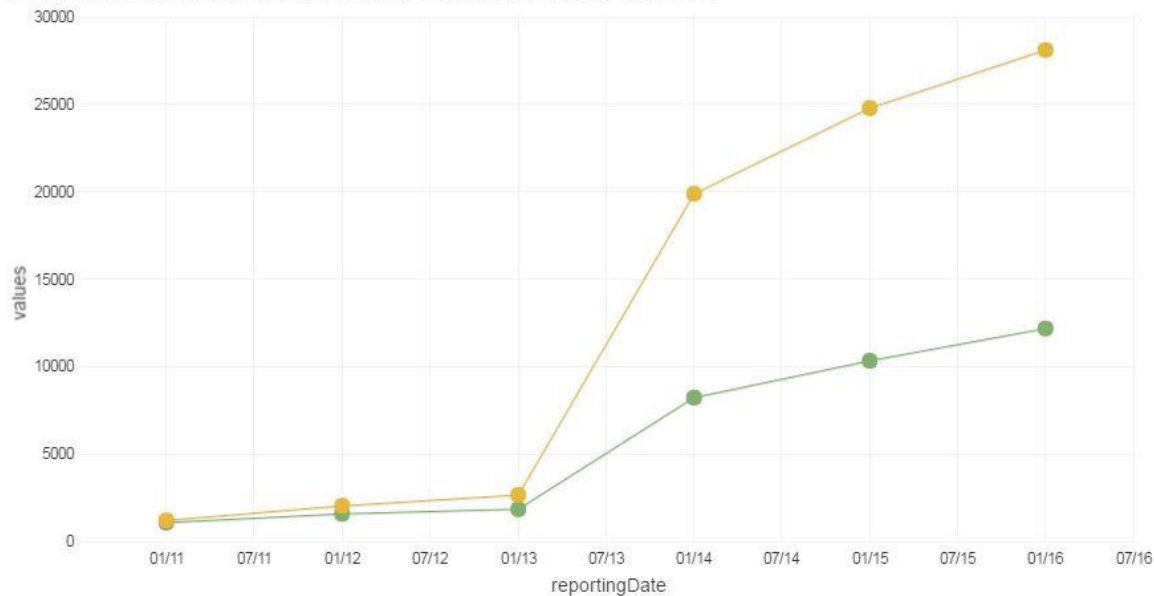
### a. Evolution of documented data and conformity of the documentation

MDv1\_DS (green): number of spatial data sets for all Annexes that have metadata

MDv2\_DS (yellow): number of spatial data sets for all Annexes that have conformant metadata

NUMBER OF SPATIAL DATA SET THAT HAVE METADATA (MDV1\_DS) AND HAVE CONFORMANT METADATA (MDV2\_DS)

● mdv1\_ds (6) ● mdv2\_ds (6) indicatorValue values per 1y | (12 Hits) | Time correction: browser



### b. Documented data per annex in 2015

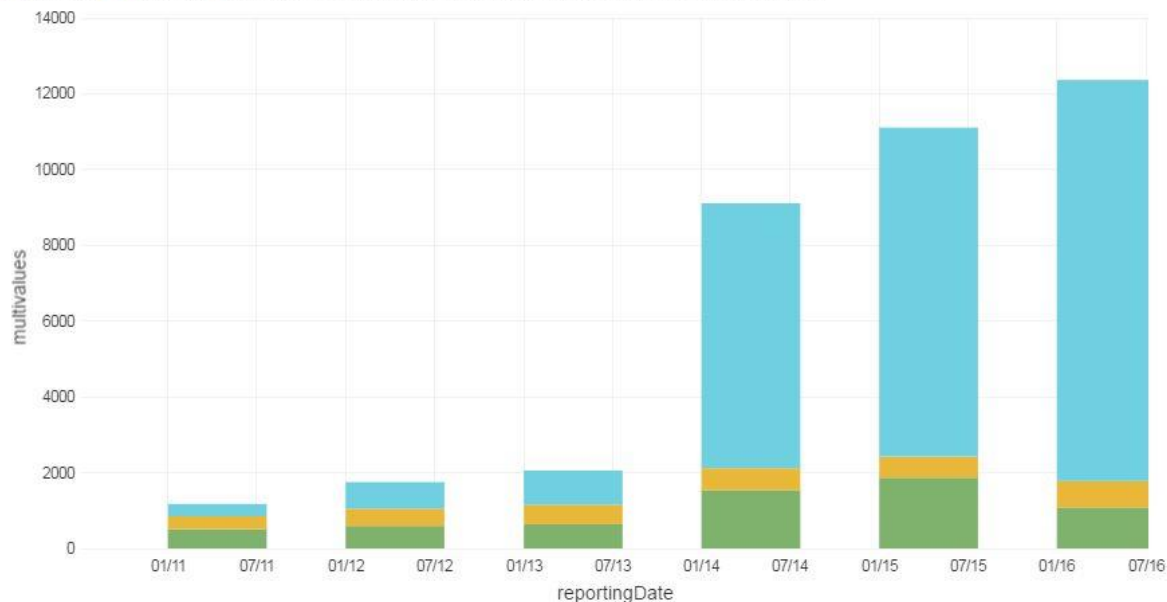
MDv2.1 (green): number of spatial data sets for Annex I that have conformant metadata

MDv2.2 (yellow): number of spatial data sets for Annex II that have conformant metadata

MDv2.3 (blue): number of spatial data sets for Annex III that have conformant metadata

NUMBER OF SPATIAL DATA SETS THAT HAVE CONFORMANT METADATA PER ANNEXES

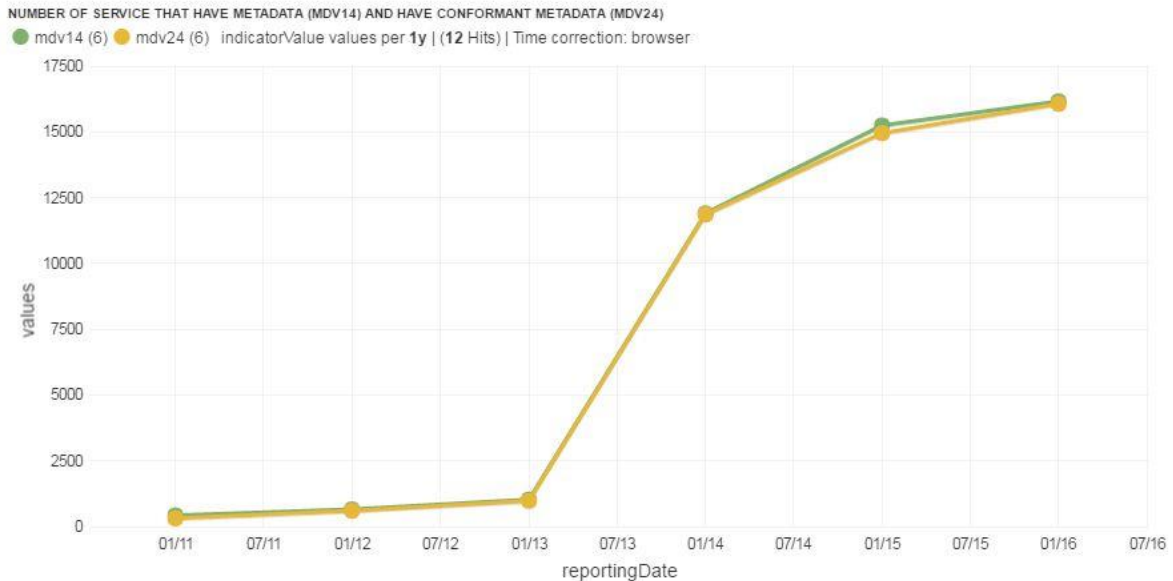
● mdv21 (6) ● mdv22 (6) ● mdv23 (6) indicatorValue multivalues per 1y | (18 Hits) | Time correction: browser



### c. Evolution of documented services and conformity of the documentation

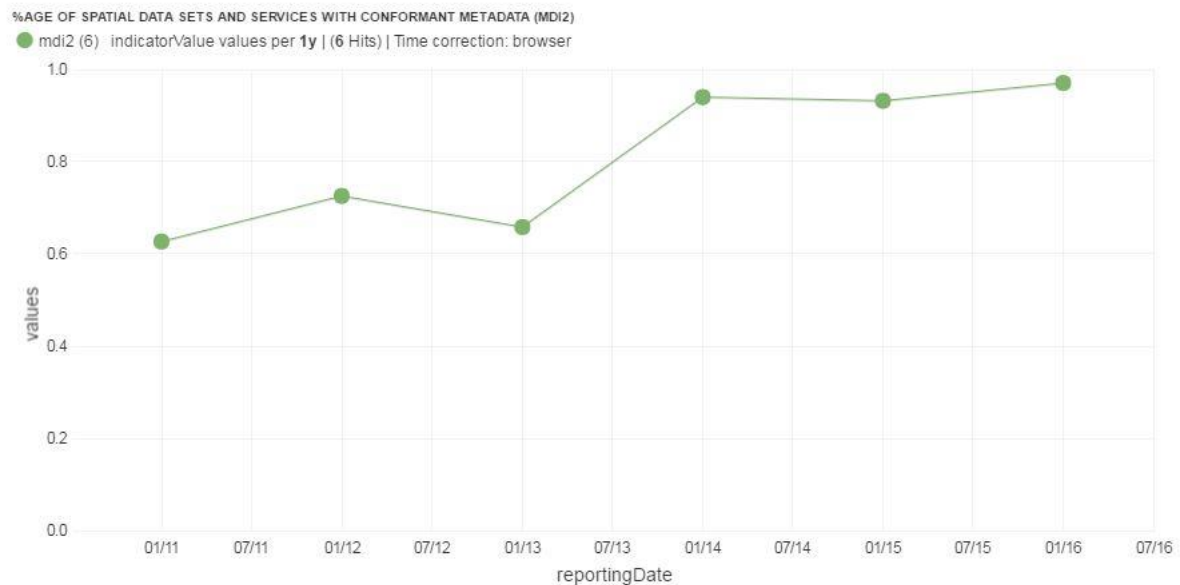
MDv1.4 (green): number of spatial data services that have metadata

MDv2.4 (yellow): number of spatial data services that have conformant metadata



### d. Evolution of the overall conformity of the documented metadata

$MDi2 = \frac{\text{number of spatial data sets for all Annexes that have conformant metadata} + \text{number of spatial data services that have conformant metadata}}{\text{number of spatial data sets for all Annexes} + \text{number of spatial data services}}$



#### Evaluation of progress for step 2:

Germany has documented and published metadata through a digital discovery service for 95,81% (12180 out of 12712) of the identified spatial data sets and 99,46% (16161 out of 16248) of the digital services. Overall, 97,08% of the metadata conforms to the INSPIRE metadata specifications.

It shows a very high level of maturity.



## 2.3. Accessibility of the data through digital services (step 3)

### a. Digitally accessible spatial data per INSPIRE theme in 2015

### b. Evolution of spatial data made accessible through digital services

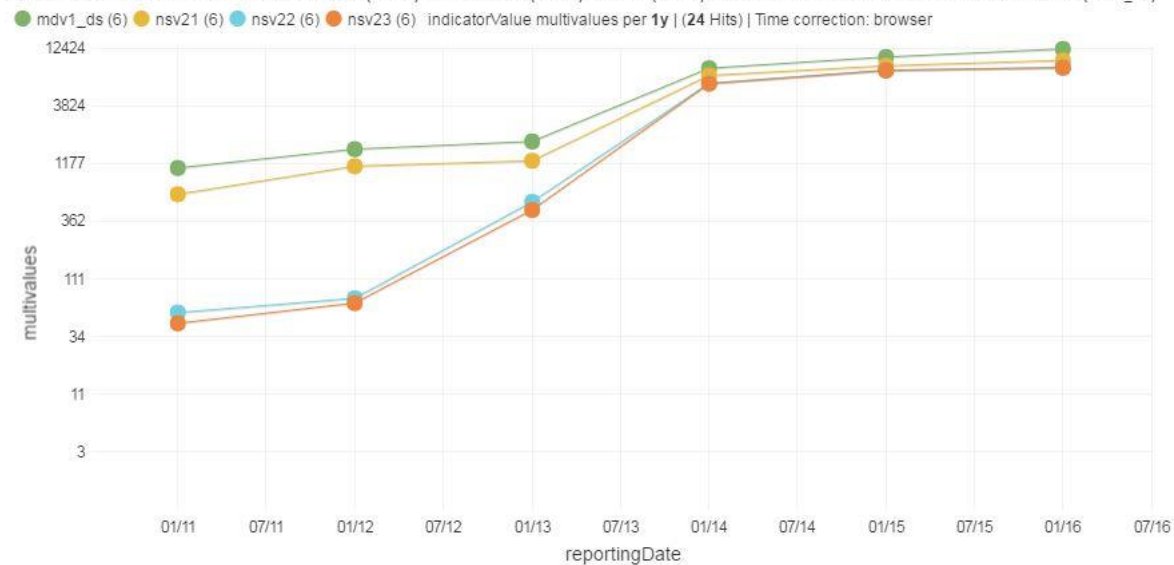
MDv1\_DS (green): number of spatial data sets for all Annexes that have metadata

NSv2.1 (yellow): number of spatial data sets for which a view service exists

NSv2.2 (blue): number of spatial data sets for which a download service exists

NSv2.3 (orange): number of spatial data sets for which both a view and a download service exists

NUMBER OF SPATIAL DATA SETS FOR WHICH A VIEW (NSV21) OR DOWNLOAD (NSV22) OR BOTH (NSV23) SERVICE EXIST AND THE TOTAL NUMBER OF METADATA (MDV1\_DS)

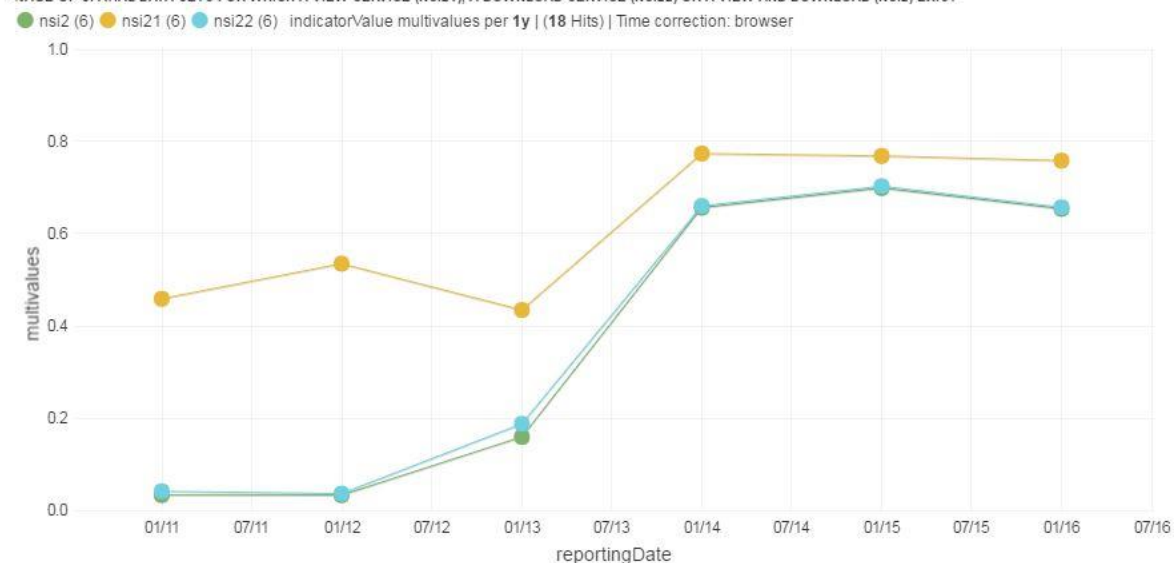


NSi2 (green) = number of spatial data sets for which both a view and a download service exists / number of spatial data sets for all Annexes

NSi2.1 (yellow) = number of spatial data sets for which a view service exists / number of spatial data sets for all Annexes

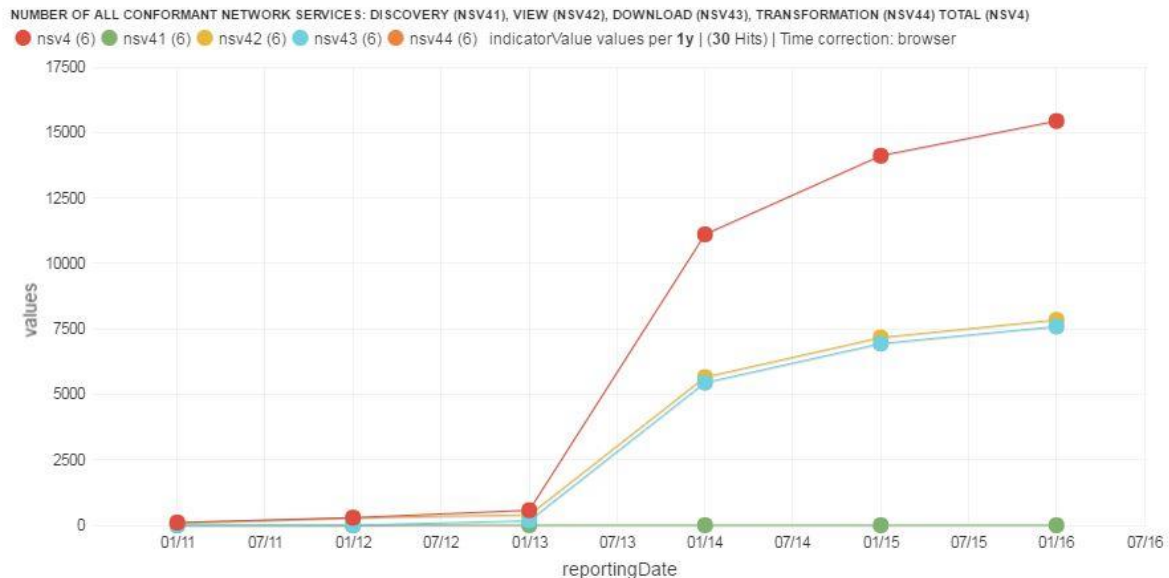
NSi2.2 (blue) = number of spatial data sets for which a download service exists / number of spatial data sets for all Annexes

%AGE OF SPATIAL DATA SETS FOR WHICH A VIEW SERVICE (NSI21), A DOWNLOAD SERVICE (NSI22) OR A VIEW AND DOWNLOAD (NSI2) EXIST



### c. Evolution of the conformity of the digital services

- NSv4 (red): number of all conformant network services
- NSv4.1 (green): number of conformant discovery network services
- NSv4.2 (yellow): number of conformant view network services
- NSv4.3 (blue): number of conformant download network services
- NSv4.4 (orange): number of conformant transformation network services



#### Evaluation of progress for step 3:

Germany has:

- 75,88% of its data sets accessible for viewing through a view service;
- 65,74% of its data sets accessible for download through a download service.

**95,02% of the available digital services are conform to the INSPIRE network service specifications (15439 out of 16248).**

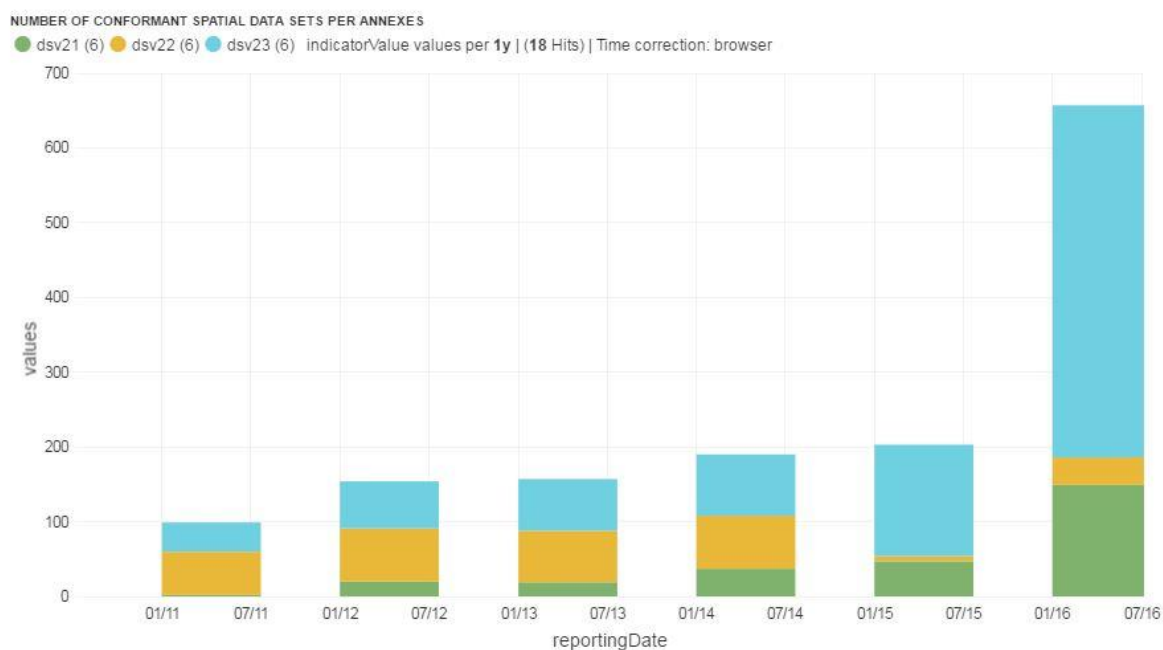
Germany shows that it has built the necessary capacity and competences to make data accessible through digital INSPIRE network services. Accessibility of datasets could be further improved. The technical conformity of the available services with the INSPIRE network service is very high.

#### 2.4. Interoperability of spatial data sets (step 4)

The interoperability of spatial data sets is an outlook on the readiness of Member States to make their spatial data interoperable according to the interoperability specifications laid down in the INSPIRE interoperability implementing regulation ([Commission Regulation \(EU\) No 1089/2010](#)). The deadlines for implementation of the spatial data interoperability are in the future: 23/11/2017 for Annex I data and 21/10/2020 for Annex II and III data.

### a. Evolution of the conformity with INSPIRE interoperability specifications for spatial data

DSv2.1 (green): number of conformant spatial data sets with conformant metadata for Annex I  
DSv2.2 (yellow): number of conformant spatial data sets with conformant metadata for Annex II  
DSv2.3 (blue): number of conformant spatial data sets with conformant metadata for Annex III



#### Evaluation of progress for step 4:

**Germany has reported 657 data sets to be conform to the INSPIRE interoperability specifications in 2015.**

We can conclude that Germany has started its preparations for the 2017/2020 data interoperability deadlines.

### 3. Outlook

Germany has reviewed their INSPIRE implementation and provided an [action plan \(Annex 10.3\)](#) in 2016 to remediate existing implementation issues and further improve the overall conformity of the implementation.

The following actions are set up to directly address previously identified issues:

#### a. Coordination (1.1; 1.2)

- Involve GDI-DE representatives in thematic coordination bodies between the federal and Länder levels or create joint working groups, in order to improve the knowledge exchange between INSPIRE and thematic communities.
- Review and if necessary revise the assignment of existing data sets to INSPIRE data themes.
- Investigate whether spatially aggregated data sets exist at federal or Länder level, in order to improve the spatial coverage of INSPIRE data sets.
- Develop "best practice" documents to illustrate the added value of INSPIRE.

#### *b. Data sharing and exchange (1.4)*

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#### *c. Metadata (2.2)*

- Develop (cross-)thematic guidance documents (e.g. for the domains of water management or road construction) covering responsibilities, granularity, metadata, data harmonisation and network services.

#### *d. Network services (2.3)*

- Develop (cross-)thematic guidance documents (e.g. for the domains of water management or road construction) covering responsibilities, granularity, metadata, data harmonisation and network services.

#### *e. Data Interoperability (2.4)*

- Develop (cross-)thematic guidance documents (e.g. for the domains of water management or road construction) covering responsibilities, granularity, metadata, data harmonisation and network services.

## 4. Summary - How is Country doing?

INSPIRE key obligation	Overall implementation status and trend	Outlook	<p align="center"><b><u>Dashboard Legend</u></b></p> <p><b>Implementation Status:</b></p> <p>😊: implementation of this provision is well advanced or (nearly) completed. Outstanding issues are minor and can be addressed easily.</p> <p>😐: implementation of this provision has started and made some progress but is still far from being complete. Outstanding issues are significant and need to be addressed to ensure that the objectives of the legislation can still be reached by 2020.</p> <p>😞: implementation of this provision is falling significantly behind or has not even started. Serious efforts are necessary to close implementation gap.</p> <p><b>Trend:</b></p> <p>↗️: the trend of the implementation is positive.</p> <p>➡️: the trend of the implementation is neutral.</p> <p>↘️: the trend of the implementation is negative.</p> <p><b>Outlook:</b></p> <p>🟢: clear and targeted actions have been identified which allow reaching the objectives of the legislation in an effective way.</p> <p>🟡: No real progress has been made in the recent past or actions which have been identified are not clear and targeted enough to predict a more positive outlook.</p> <p>🔴: no actions have been identified to overcome identified implementation gaps.</p>
Ensure effective coordination	😊 ↗️	🟢	
Data sharing without obstacles	😊 ↗️	🟢	
Step 1: Identify spatial datasets	😊 ↗️	🟢	
Step 2: Document datasets (metadata)	😊 ↗️	🟢	
Step 3: Provide services for identified spatial datasets (discovery, view, download)	😊 ↗️	🟢	
Step 4: Make spatial datasets interoperable by aligning them with the common data models.	😐 ↗️	🟢	

### Specific recommendations:

For each Member State, the accessibility of environmental data (based on what the INSPIRE Directive envisages) as well as data-sharing policies have been systematically reviewed.

Germany has indicated in the 3-yearly INSPIRE implementation report that the necessary data-sharing policies allowing access and use of spatial data by national administrations, other Member States' administrations and EU institutions without procedural obstacles are available. In absence of data-sharing policies at other administrative levels, Federal law is in place to regulate and facilitate the sharing of spatial data.

Assessments of monitoring reports issued by Germany and the spatial information that Germany has published on the INSPIRE geoportal indicate that not all spatial information needed for the evaluation and implementation of EU environmental law has been made available or is accessible. The larger part of this missing spatial information consists of the environmental data required to be made available under the existing reporting and monitoring regulations of EU environmental law. Germany, led by its steering committee on spatial data infrastructure as national contact point on INSPIRE has set up an initiative, as part of an action plan to further improve implementation, to identify existing but not accessible electronic datasets so far. In the short run, these data shall be made available "as is".

### *Suggested action*

- Identify and document all spatial data sets required for the implementation of environmental law, and make the data and documentation at least accessible 'as is' to other public authorities and the public through the digital services foreseen in the INSPIRE Directive.