Status of implementation of the INSPIRE Directive – 2016 Country Fiches

COUNTRY FICHE Estonia

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 Estonia 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 written exchange on the implementation of the INSPIRE Directive between the Commission and Estonia representatives.)

1. State of Play

A high-level view on the governance, use and impact of the INSPIRE Directive in Estonia. 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 public authority	Estonian Land Board (Maa-amet)
Mailing address	Mustamäe tee 51, 10621 Tallinn, Eesti
Telephone number	+372 665 0600
Fax number	+372 665 0604
E-mail	maaamet@maaamet.ee
Website address	https://www.maaamet.ee
Contact person	Mariliis Aren
Telephone number	+372 665 0652
E-mail	mariliis.aren@maaamet.ee
Contact person substitute	Peep Krusberg
Telephone number	+372 665 0621
E-mail	peep.krusberg@maaamet.ee

- Coordination Structure
  - As recorded in its statutes, the Estonian Land Board (Maa-amet) coordinates the implementation of the INSPIRE Directive at national level. The Estonian Land Board is attached to the Ministry of the Environment, which makes it possible to establish a direct contact with the producers and users of environmental data.
  - In the past there has not been any need for a separate coordination structure as there is a smooth and long-term standing cooperation amongst the bodies responsible for the INSPIRE themes under the different annexes (Ministry of the Environment, Ministry of Economic Affairs and Communications, Ministry of the Environment, Ministry of Rural Affairs/authorities, Agricultural Registers and Information Board (ARIB), the National Institute for Health Development, the Statistical Office …).
  - Annex III spatial data are linked to a wide variety of agencies. The need for better coordination across these data providers has risen to increase the understanding of the available data and how to make them available.

- Progress
    - In comparison to the previous reporting period, the data providers for the thematic areas under all INSPIRE Annexes have been identified **[Effectiveness].** Estonian metadata has been documented in the geoportal and the overall metadata quality has improved. To ensure the quality of the offering and the implementation further regulations were adopted (e.g. by-laws, procedures for data capture). INSPIRE compliant Annex I and II data sets can be consulted on the Estonian geoportal (http://inspire.maaamet.ee/inspire-teenused).

1.2 Functioning and coordination of the infrastructure

- In Estonia, the national infrastructure for spatial information is closely related to the State Information System. The Spatial Information Act transposes the INSPIRE Directive and mandates the description and maintenance of metadata for spatial data sets and services in the Estonian geoportal (http://inspire.maaamet.ee/metaandmed). The Estonian national discovery service connects the geoportal to the EU geoportal. All INSPIRE network services are accessible to the public through the Estonian geoportal as well (http://inspire.maaamet.ee/services).
- The Government of the Republic has adopted the "Estonian Information Society Strategy 2020". This is not specifically targeted at the implementation of the INSPIRE directive, but the objectives of the INSPIRE Directive have been taken into account **[Coherence]**. The annual work programme shall define the detailed activities to promote the information society, including actions and deadlines arising from INSPIRE.
- The implementation is carried out by the data providers. The largest provider of spatial data in Estonia is Maa-amet (Estonian Land Board) serving:
    - companies and state and municipal authorities which make use of the infrastructure for spatial information services in their daily work;
    - developers who use the services in their applications;
    - citizens who use map applications and carry out simple searches on the geoportal.
- To raise awareness for the requirements and obligations of the INSPIRE Directive amongst administrators and developers of Estonian information systems, the Land Board participates in the coordination process for the State Information System and registers the INSPIRE requirements in the state information system catalogue (https://riha.eesti.ee).
- Compared to the last reporting period, there has been an improvement in the quality of metadata for the spatial data sets and services and the amount of data sets, metadata and network services has grown **[Effectiveness]**.
- There have been improvements in data exchange and cooperation between the various data providers has deepened. Holders of information in Annex III themes have been further identified, and will be followed up by the Land Board by fostering cooperation and data exchange **[Effectiveness]**.

1.3 Usage of the infrastructure for spatial information

- The most popular service is the EULIS service, which allows to search and view cadastral information. WMS services such as public base maps were visited on average 400 000 times per month in 2015. Since the beginning of 2016, the EULIS service is also available on smart devices, which is likely to lead to a further increase in the use of this service **[Efficiency]**.
- The Land Board's data, maps and aerial photos are used in almost all institutions, inventories and planning task, including in the field of environmental policy (environmental permits, planning, impact assessments (EIA), Flood Hazard, risk assessment). Whenever it is necessary to take decisions that are tied to specific locations, topographical spatial data is used **[Coherence]**.
- The national Heritage Board database is used by a large volume of notaries via the e-notary, conservationists and planners. Notaries can create queries that can verify whether transactions will be subject to restrictions related to heritage protection.
- The ARIB's register of spatial data are publicly available. The animal register and the LPIS data can be viewed and downloaded as files since 2014. The ARIB uses Land Board data in their daily work (e.g. LPIS): aerial images, cadastral data, administrative boundaries ….

- Data relating to the population and housing and dwellings have been spatially enabled and are used in the preparation of the development plans, planning, analysis of research work on the environmental impact, etc.
- On the Land Board geoportal (http://geoportaal.maaamet.ee) spatial data and services are offered for free mainly without limitations. Information on public WMS services is available at http://geoportaal.maaamet.ee/est/Teenused/Avalik-WMS-teenus-p65.html.
- The Estonian INSPIRE geoportal was set up in 2012 (http://inspire.maaamet.ee). Through the geoportal spatial data is shared with public authorities, businesses as well as individuals who seek to access and use the spatial data.
- Cooperation with other countries will be achieved through international projects or programmes. Different projects contribute to the resolution of cross-border issues e.g. LIFE project 'Marine Protected Areas in the Eastern Baltic Sea" resulted in the streamlining of the Eastern Baltic dataset; collaboration with PRIMAR in Norway on terrestrial and marine areas **[EU-added value]**.

1.4 Data Sharing Arrangements

- Spatial data is provided to the public and private sector by the Estonian Land Board under different forms (e.g. prepared downloadable data sets, services) and conditions (free of charge, state commissioned data, charges).
- There are a limited number of specific agreements between public authorities e.g. to support impact assessments, for the exchange of information between databases for nature protection and cultural heritage.
- Estonian INSPIRE network services can be discovered in the Estonian geoportal (http://inspire.maaamet.ee/inspire-teenused). Some services are free of charge, for others a cost is charged.
- The main barriers to the use of spatial information are:
    - Lack of GIS know-how which is most problematic in municipalities.
    - Uptake is hampered by existing databases and information systems that have been set up to carry out specific tasks and have difficulties with responding to new needs.
    - Lack of standardization in the collection and sharing of spatial data.
    - Limited and insufficient financial resources.

1.5 Costs and Benefits

- Not all cost can be easily quantified. This depends on the scope of the data sets to be harmonized under the INSPIRE Directive and the effort made by staff in the different administrations responsible for INSPIRE implementation.
- For the development of the geoportal the following costs were made:
    - The IT infrastructure: EUR 223 930 (EUR 55 800 for hardware and software EUR 168 130)
    - Data harmonisation: implementation is estimated at EUR 216 168, operational recurring annual costs are estimated at EUR 24 000.
    - Network services: implementation is estimated at EUR 94 200, operational recurring annual costs are estimated at EUR 22 116.
    - Other labour costs for project management, testing etc. EUR 83 000.
- The average cost for coordinating the implementation of the INSPIRE Directive in Estonia is estimated to be the equivalent of two full time equivalents.
- The implementation of the INSPIRE Directive improves the availability of environmental information and provides better evidence and supports for decision making in combination with other (open data) sources of information **[Efficiency]**.
- The availability of free of charge services has made the information more accessible for end-users and made public services more efficient (e.g. prevention of land and real estate fraud cases), but at the same time the costs to exploit the IT infrastructure remained high.
- The sharing of data across authorities is likely to be cost saving and reduces duplication of spatial data sets **[Efficiency]**.
- INSPIRE benefits only start to show when a wide enough range of spatial data is made available by different data providers. This requires a level of IT expertise which is not

available within the majority of public authorities. At the same time the Directive inspires the public bodies to cooperate with each other and exchange the best available expertise **[Relevance]**. It is necessary to find solutions which are inexpensive but at the same time, as efficient as possible.

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.

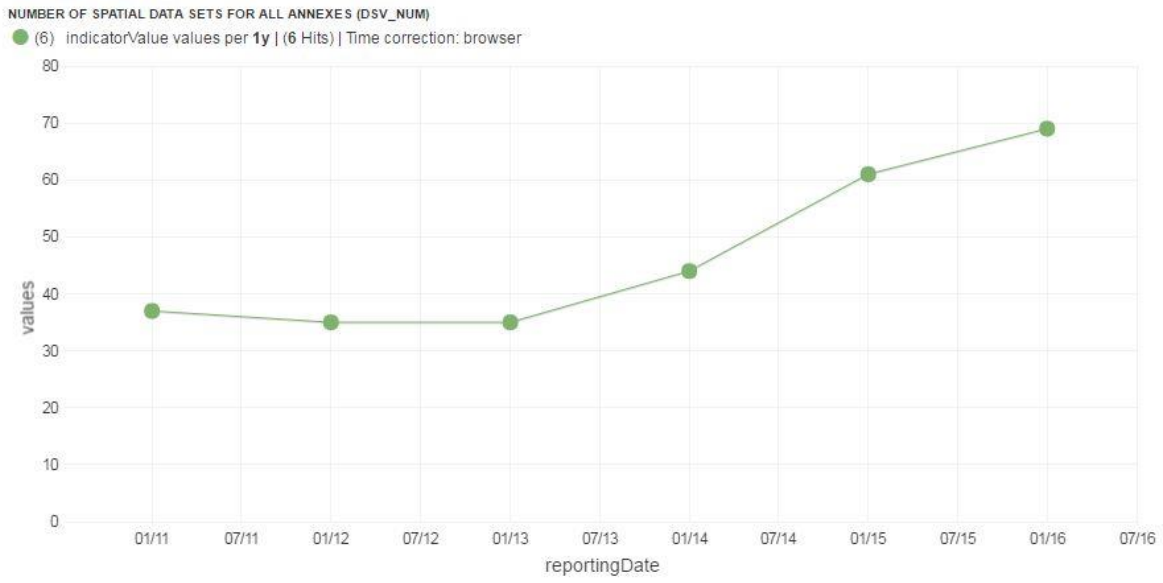
The key facts and figures presented in this country fiche are based on the information provided by Estonia on the INSPIRE dashboard. **The provided statistics is not reflecting the data available on** INSPIRE geoportal. The INSPIRE geoportal is updated on a regular and ongoing basis, whilst the INSPIRE 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.

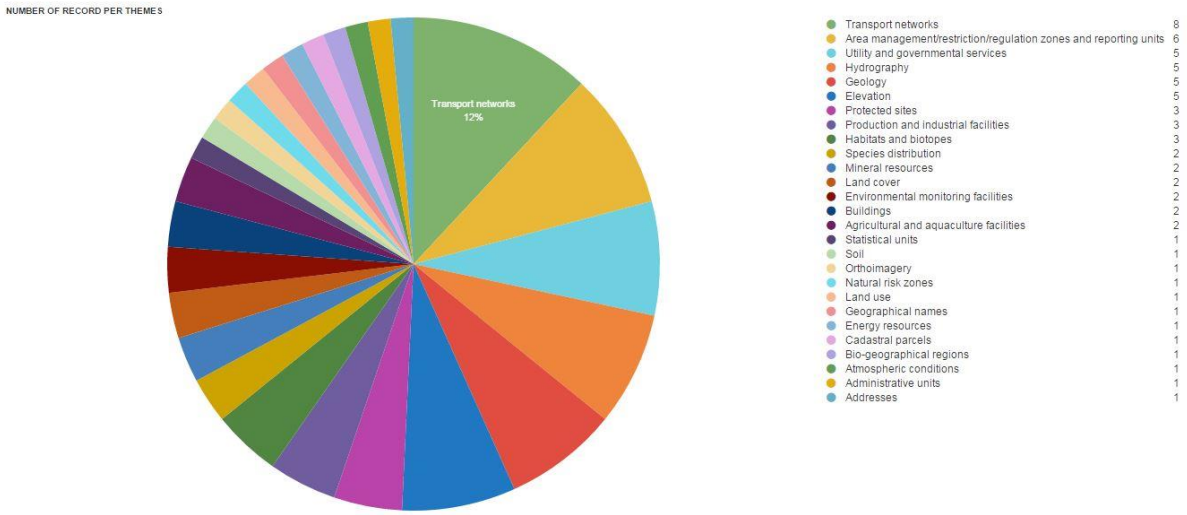
2.1. Identification of spatial data with relevance to the environment (step 1)

a. Evolution of the data offering

DSv_Num: number of spatial data sets for all Annexes

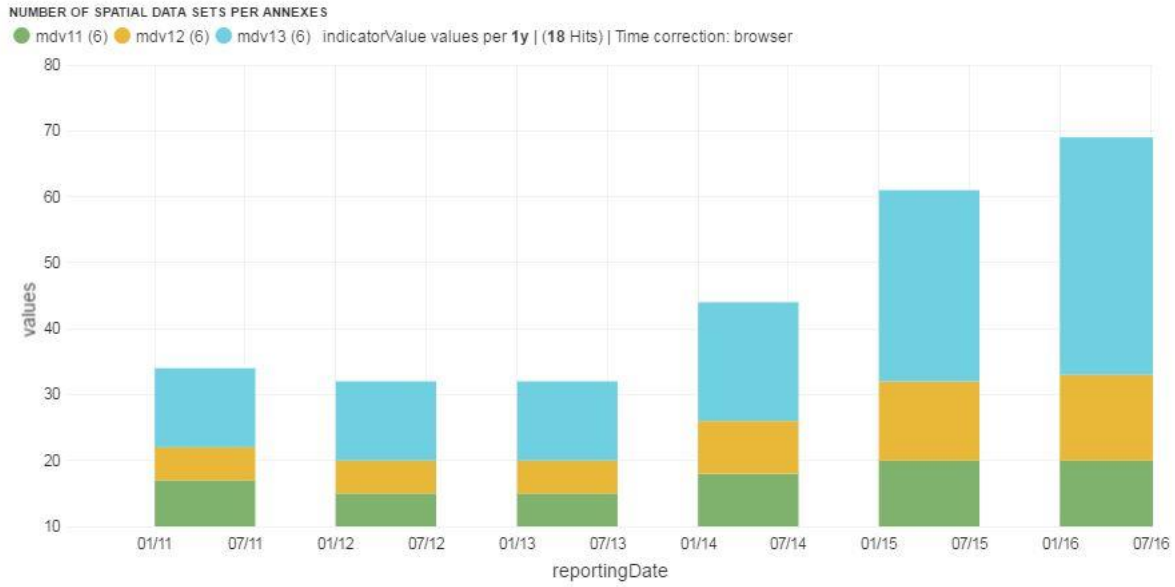


b. Data sets made available per INSPIRE theme in 2015



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



Evaluation of progress for step 1:

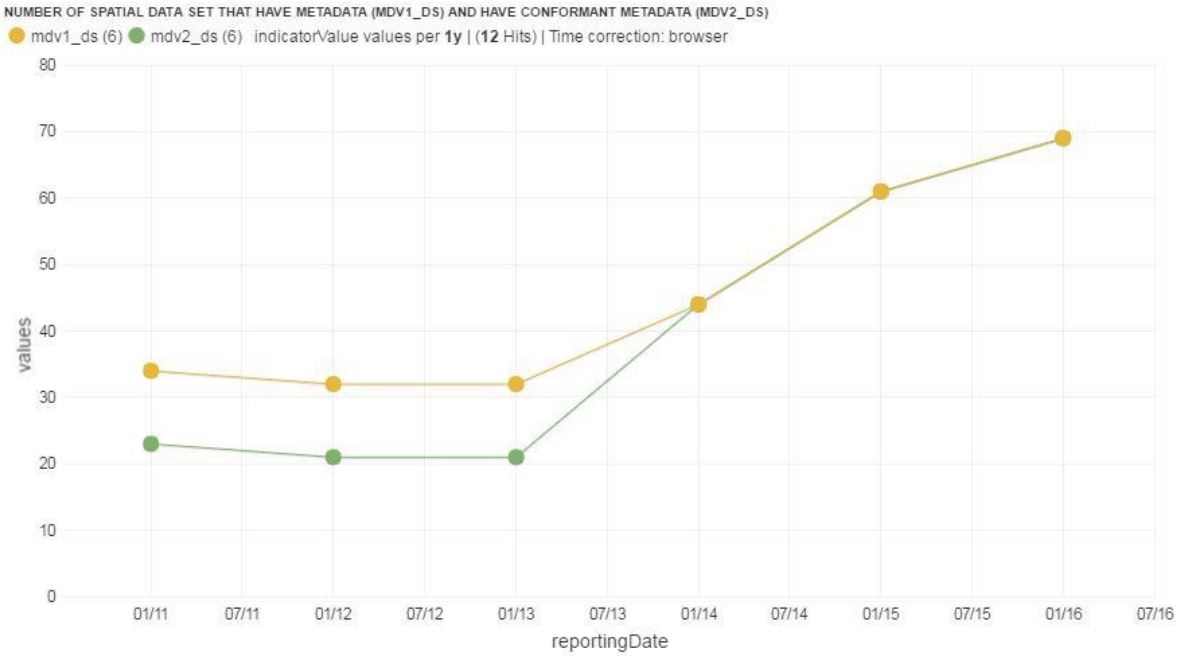
Estonia has identified a total of 69 spatial data sets with relation to the themes listed in the INSPIRE annexes.

The number of identified spatial data sets slightly increased since 2014. A lot of relevant spatial data sets have already been identified for the different data themes. However, the identification still seems incomplete and Estonia 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)

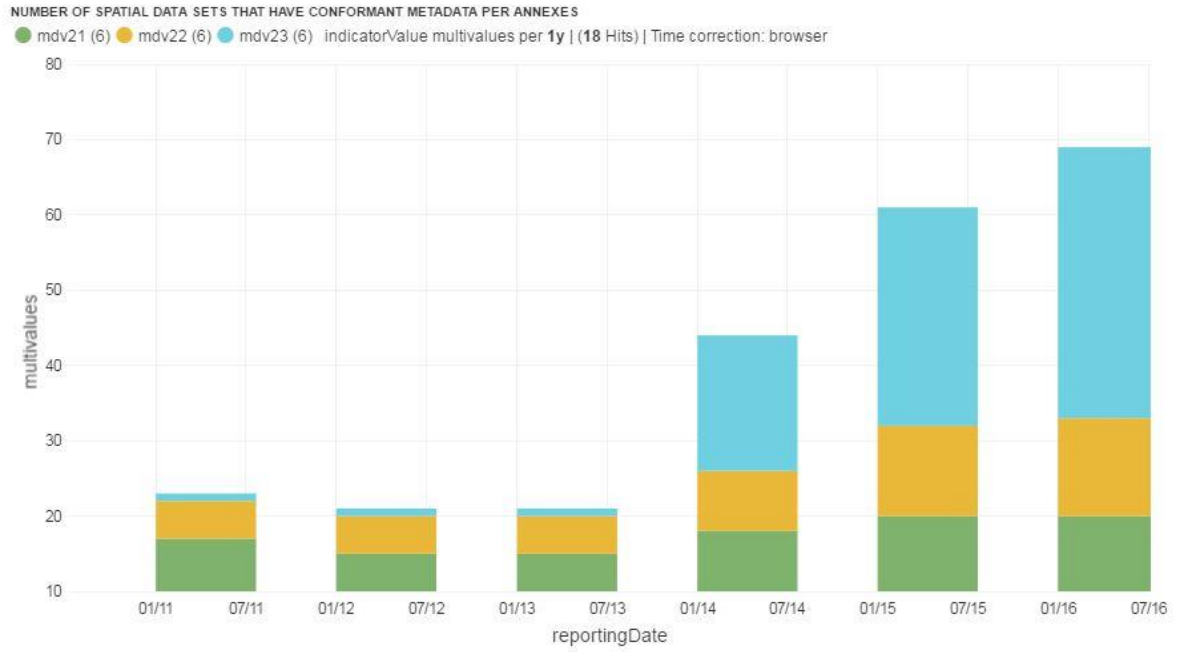
a. Evolution of documented data and conformity of the documentation

MDv1_DS (yellow): number of spatial data sets for all Annexes that have metadata
MDv2_DS (green): number of spatial data sets for all Annexes that have conformant metadata



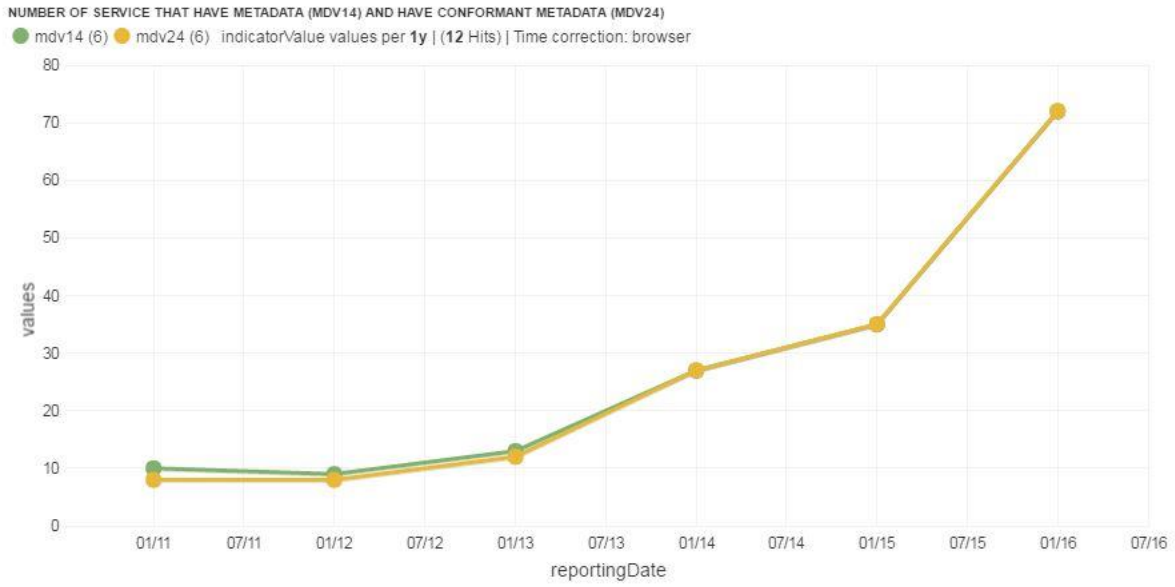
b. Documented data per annex in 2015

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



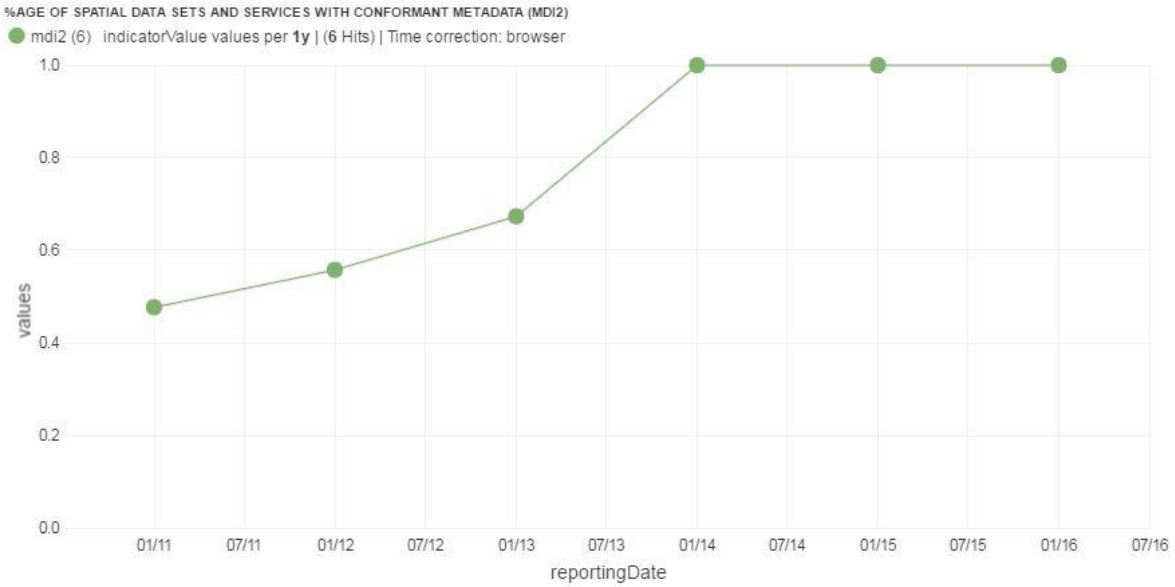
c. Evolution of documented services and conformity of the documentation

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 = (number of spatial data sets for all Annexes that have conformant metadata + number of spatial data services that have conformant metadata) / (number of spatial data sets for all Annexes + number of spatial data services)



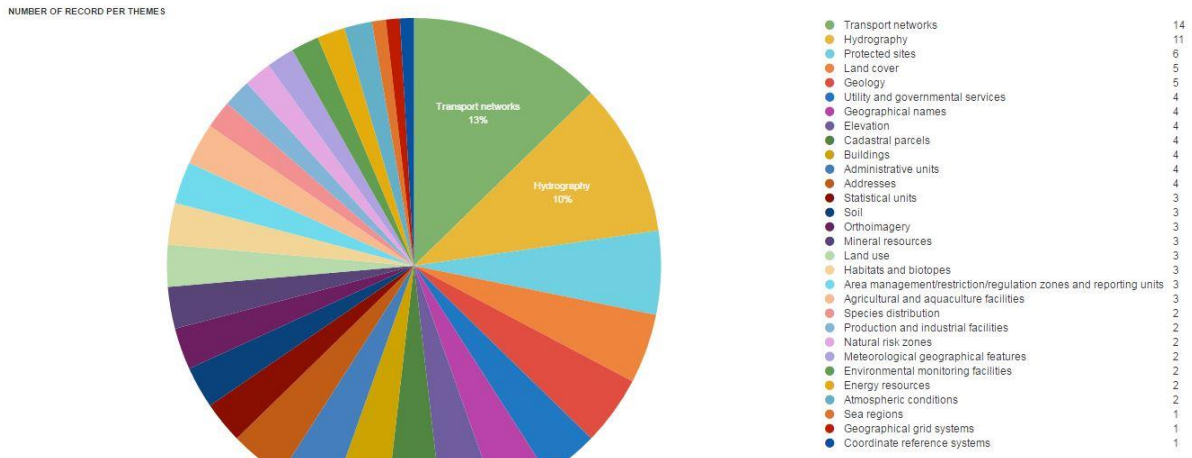
Evaluation of progress for step 2:
Estonia has documented and published metadata through a digital discovery service for 100% (69) of the identified spatial data sets and 100% (72) of the digital services. Overall, 100% of the metadata conforms to the INSPIRE metadata specifications.

It shows a very high level of maturity.

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

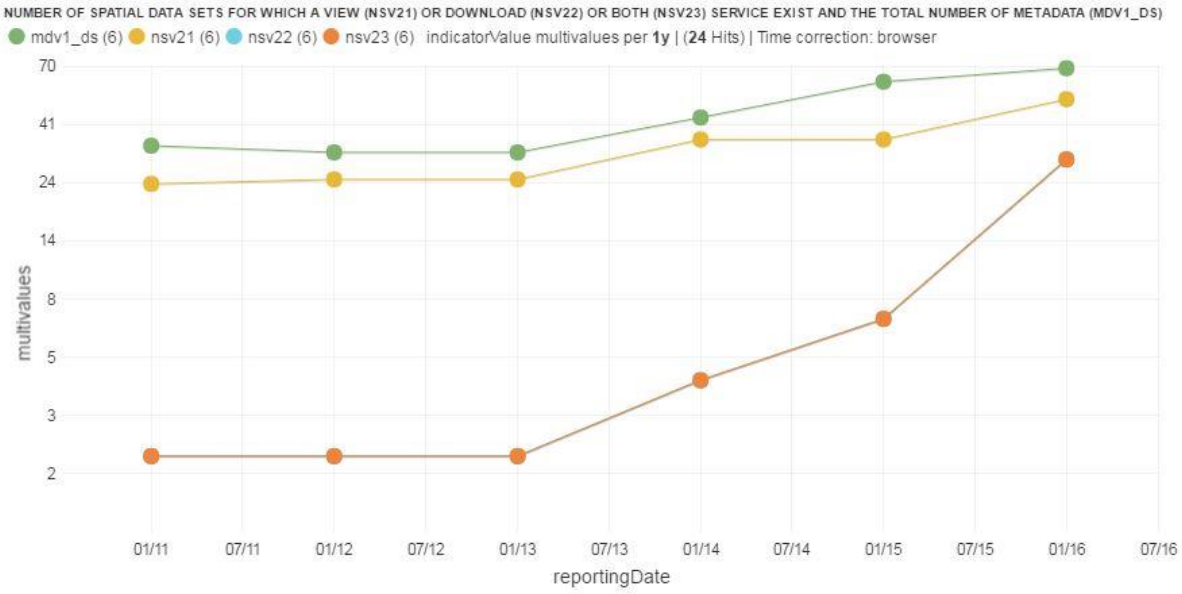
a. Digitally accessible spatial data per INSPIRE theme in 2015

Note: This figure reflects the amount of spatial data sets made available through a digital service, not the amount of available digital services. A digital service can make several spatial data sets available.



b. Evolution of spatial data made accessible through digital services

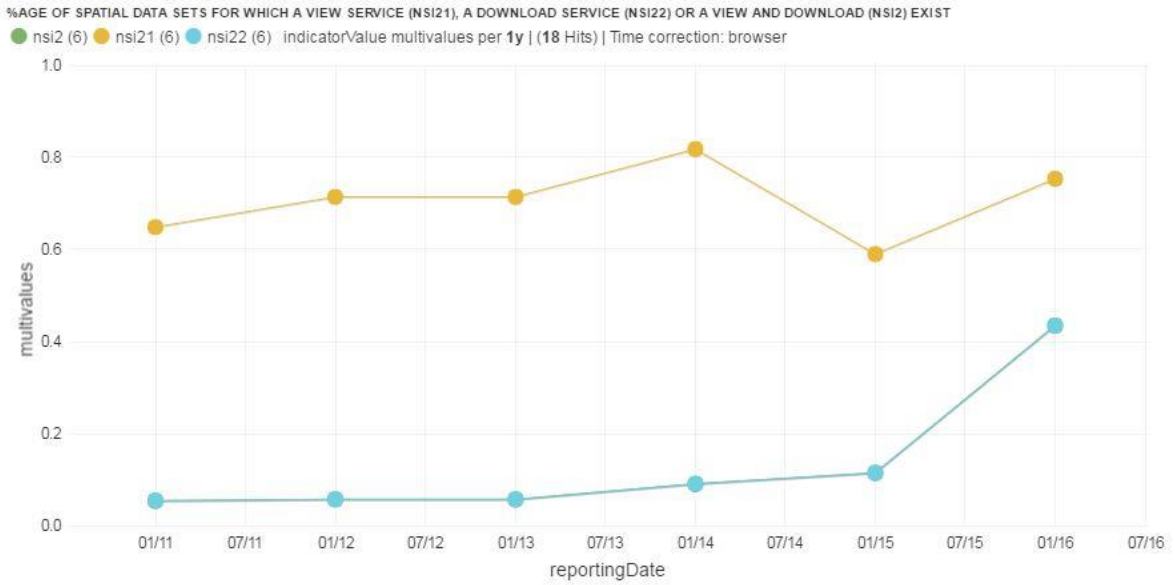
MDv1_DS (green): number of spatial data sets for all Annexes that have metadata
NSv2.1 yellow): number of spatial data sets for which a view service exists
NSv2.2 (blue): number of spatial data sets for which a download service exists
NSv2.3 (orange): number of spatial data sets for which both a view and a download service exists



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



c. Evolution of the conformity of the digital services

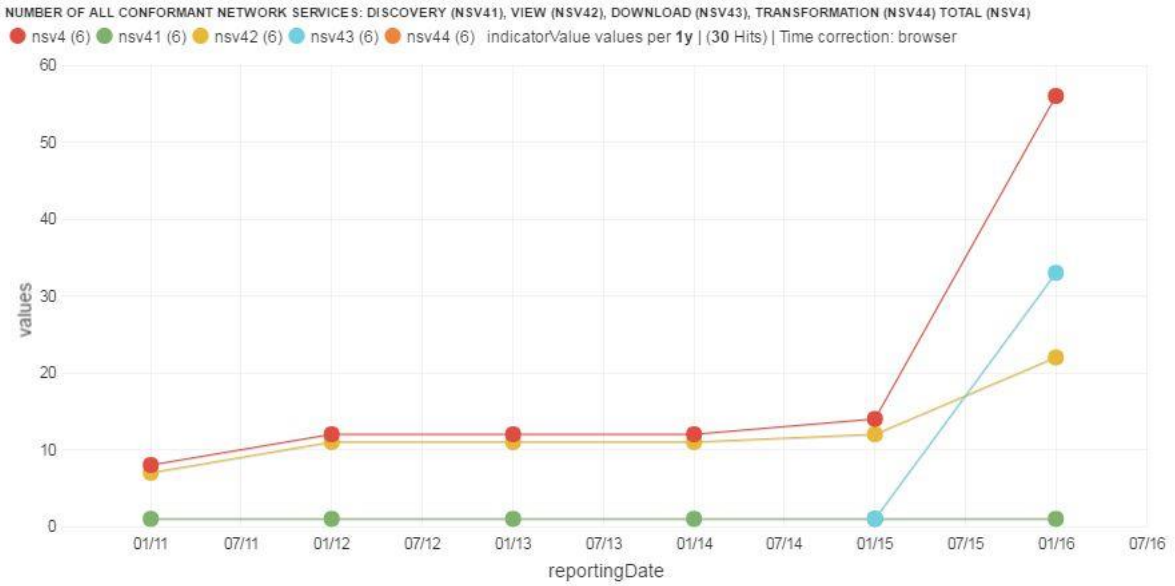
NSv4 (red): number of all conformant network services

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:

Estonia has:

- 75,36% of its data sets accessible for viewing through a view service;

- 43,48% of its data sets accessible for download through a download service.

77,78% (56 out of 72) of the available digital services are conform to the INSPIRE network service specifications.

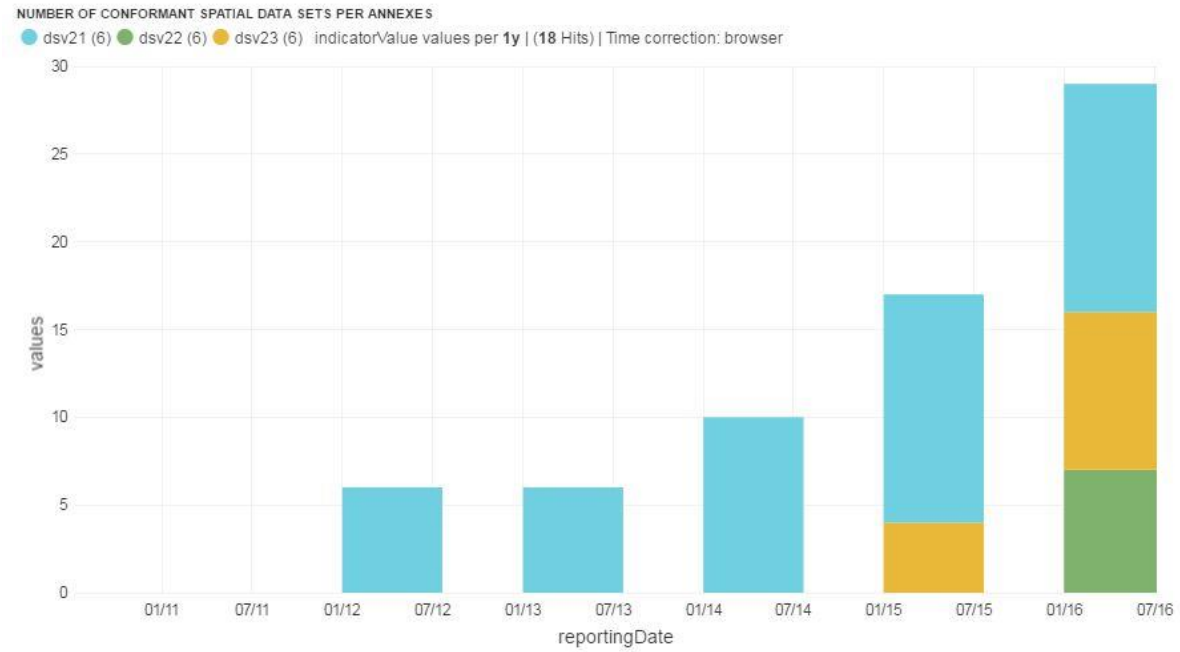
Estonia shows that it has built the necessary capacity and competences to make data accessible through digital INSPIRE network services. However, there are still spatial data that has to be brought online. The technical conformity of the available services with the INSPIRE network service specifications is high but can be also further improved.

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



Evaluation of progress for step 4:

Estonia reported 29 data sets to be conform to the INSPIRE interoperability specifications in 2015.

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

3. Outlook

Estonia has critically reviewed their INSPIRE implementation in 2015 and developed an action plan for the further implementation of the INSPIRE Directive for the period 2016-2020. The following major steps are planned in the coming years.

a. Coordination (1.1; 1.2)

- **Annex III data providers have now been identified.** From autumn 2016 on, there will be more active collaboration and coordination on Annex III to speed up implementation.
- Expand cooperation with universities and research organisations.

b. Data sharing and exchange (1.4)

- **Closer cooperation with the Environment Agency, the largest holder of Annex III data, and other holders of relevant INSPIRE information** (e.g. the Maritime Administration, Agricultural Registers, Statistical Office …) on the use of the common infrastructure managed by the Land Board to satisfy the requirements of INSPIRE data and services.
- **Increased cooperation at the EU level** to ensure the compatibility of the infrastructure with the information needs of different communities and as such guarantee the usability of INSPIRE data and services by with a wider group of end-users.

c. Metadata (2.2)

- **Further develop metadata** to guarantee that all spatial data sets and spatial data services are available in the geoportal and as such also promote the Estonian geo-portal user community.

d. Network services (2.3)

- **Estonia geo-portal development work**: Annex III integration, renewal of the interface, the development of metadata

e. Data Interoperability (2.4)

- **Update and complete the offering of compliant Annex I and II data and services.**

4. Summary - How is Country doing?

INSPIRE key obligation	Overall implementation status and trend	Outlook
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.	😐↗	○

Dashboard Legend

Implementation Status:

🙂: implementation of this provision is well advanced or (nearly) completed. Outstanding issues are minor and can be addressed easily.

😐: 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.

☹: Implementation of this provision is falling significantly behind or has not even started. Serious efforts are necessary to close implementation gap.

Trend:

↗: the trend of the implementation is positive.

➔: the trend of the implementation is neutral.

↘: the trend of the implementation is negative.

Outlook:

○: clear and targeted actions have been identified which allow reaching the objectives of the legislation in an effective way.

○: 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.

○: no actions have been identified to overcome identified implementation gaps.

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.

Estonia 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 but not fully implemented. Estonia identifies lack of specific competences and resources as main raison for existing implementation delays impeding the access to spatial data.

Assessments of monitoring reports issued by Estonia and the spatial information that Estonia 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.

Suggested action

- Critically review the effectiveness of its data policies and amend them, taking 'best practices' into consideration.
- 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.