



Unlocking the value of geospatial data: early insights from the EU Open Data Directive

Marco Minghini¹, Jordi Escriu¹, Alexander Kotsev¹, Joeri Robbrecht², Jiri Pilar³, Hannes Reuter⁴

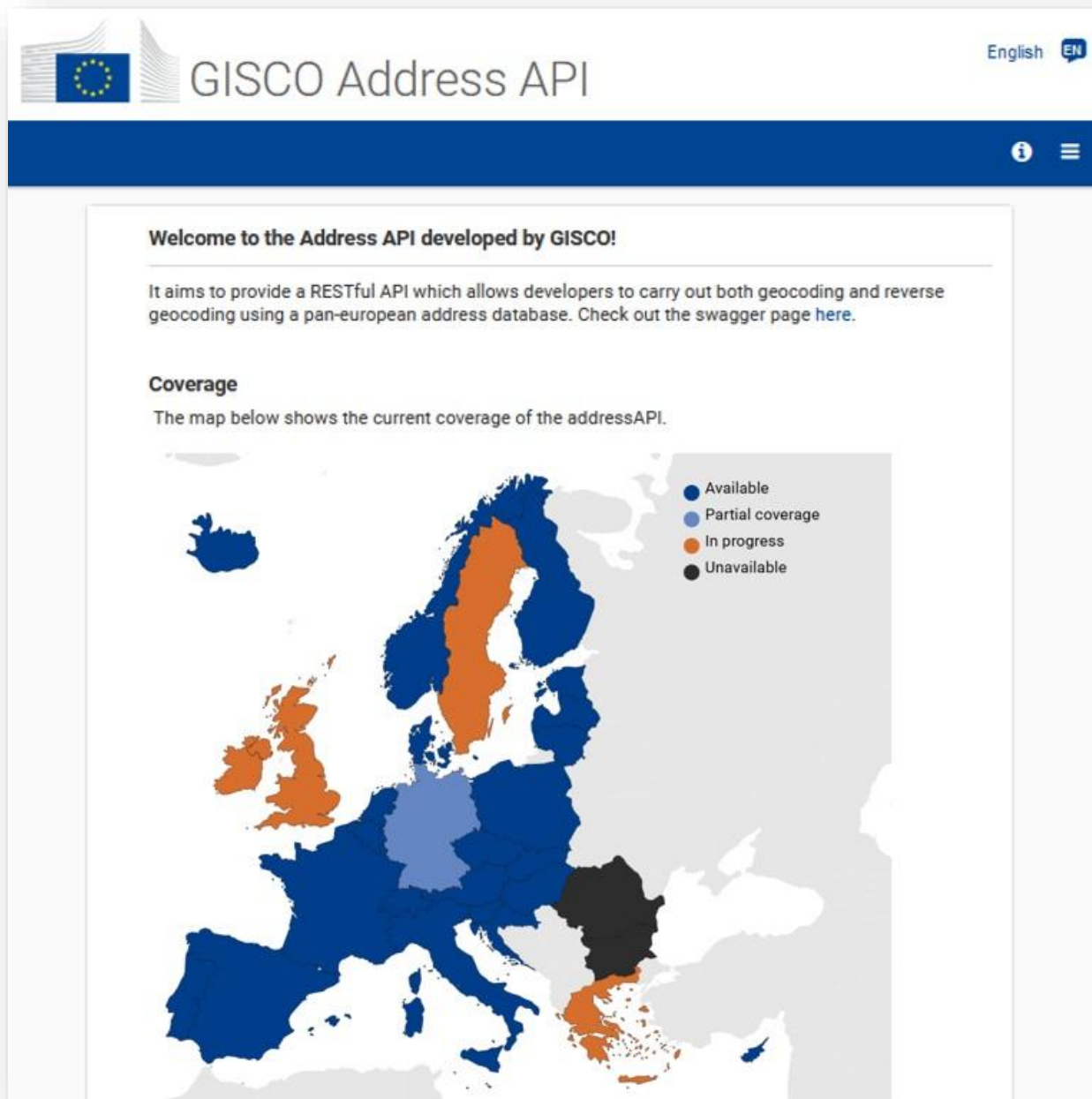
¹ European Commission, Joint Research Centre (JRC)

² European Commission, Directorate-General for Environment (DG ENV)

³ European Commission, Directorate-General for Communications Networks, Content and Technology (DG CNECT)

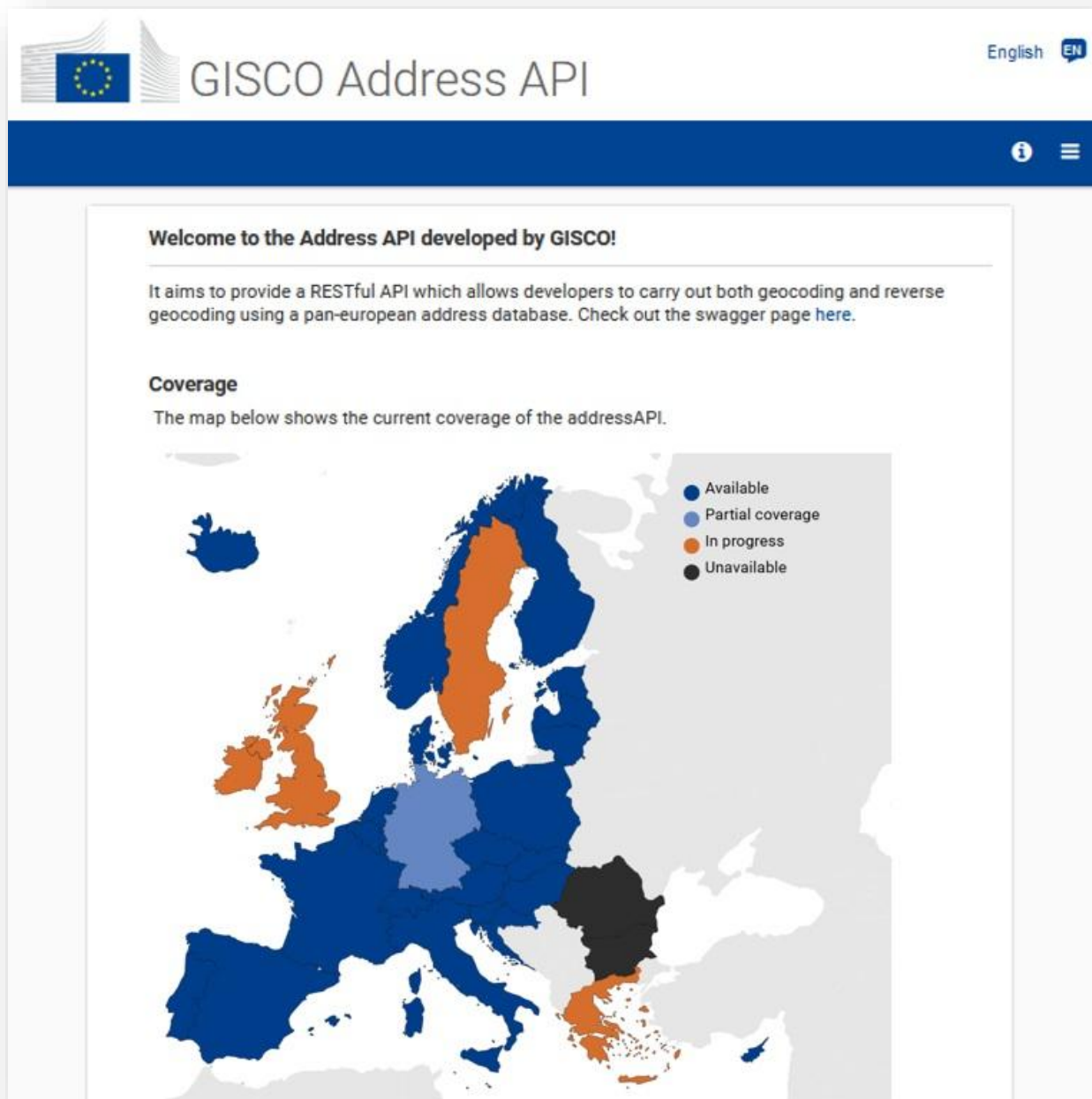
⁴ European Commission, Directorate-General Eurostat (DG ESTAT)





- Almost complete coverage of **address data** from Member States public sector organisations

Source: Updates from the ESTAT GISCO team. Presented at the 82nd INSPIRE MIG-T meeting, 27 June 2025. <https://europa.eu/!9cvpwP> (accessed 9 July 2025)



- Almost complete coverage of **address data** from Member States public sector organisations
- **How did we get here?**

Source: Updates from the ESTAT GISCO team. Presented at the 82nd INSPIRE MIG-T meeting, 27 June 2025. <https://europa.eu/!9cvpWp> (accessed 9 July 2025)

INSPIRE Directive (2007)

DIRECTIVE 2007/2/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 14 March 2007
establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)










- Aims to create a **European SDI** to support EU environmental policies
- Provides a comprehensive framework for **sharing geospatial data** in the EU
 - data discoverability (**metadata**), accessibility (**network services**) & interoperability (**data models**)
- **Annual** monitoring & reporting process
- **Evaluation** in 2022 triggered a possible **revision**, currently ongoing (more later)

<https://eur-lex.europa.eu/eli/dir/2007/2>

INSPIRE data scope

- Organised around **34 spatial data themes** for environmental applications




ANNEX: 1

 Addresses	 Administrative units
 Cadastral parcels	 Coordinate reference systems
 Geographical grid systems	 Geographical names
 Hydrography	 Protected sites
 Transport networks	

ANNEX: 2

 Elevation	 Geology
 Land cover	 Orthoimagery

ANNEX: 3

 Agricultural and aquaculture facilities	 Area management / restriction / regulation zones & reporting units
 Atmospheric conditions	 Bio-geographical regions
 Buildings	 Energy resources
 Environmental monitoring facilities	 Habitats and biotopes
 Human health and safety	 Land use
 Meteorological geographical features	 Mineral resources
 Natural risk zones	 Oceanographic geographical features
 Population distribution and demography	 Production and industrial facilities
 Sea regions	 Soil
 Species distribution	 Statistical units
	 Utility and governmental services

https://knowledge-base.inspire.ec.europa.eu/tools/inspire-themes_en

INSPIRE infrastructure

European Commission

INSPIRE Geoportal

Home | Priority Datasets | High-Value Datasets | Thematic Data | Find out more

INSPIRE Datasets - EU & EFTA Country overview

Geoportal Dataset Statistics

132092 Metadata records

101404 Downloadable Datasets

103532 Viewable Datasets

Spatial scope coverage:

☐ National ☐ Regional

Select a country

Austria	1290	1279	541	Greece	45	45	44	Netherlands	239	205	215
Belgium	613	557	500	Hungary	78	67	55	Norway	142	49	22
Bulgaria	107	115	129	Iceland	106	62	85	Poland	172	129	123
Croatia	145	90	127	Ireland	84	72	61	Portugal	345	223	222
Cyprus	42	42	41	Italy	8519	2809	4543	Romania	124	51	48
Czech Republic	90	84	87	Latvia	158	87	94	Slovakia	147	138	142
Denmark	197	144	134	Liechtenstein	88	38	56	Slovenia	81	40	42
Estonia	92	73	74	Lithuania	103	102	66	Spain	390	382	385
Finland	436	207	253	Luxembourg	316	314	293	Sweden	250	225	231
France	207	119	141	Malta	162	151	150	EUROSTAT	30	30	30
Germany	110860	93400	94324	Moldova	189	4	95				

European Commission

INSPIRE Reference Validator

Home | Test selection | Test reports | Get support | More on the INSPIRE Reference Validator

Configure your test

Select the INSPIRE resource you would like to test

☒ Metadata

☐ View Service

☐ Download Service

☐ Discovery Service

☐ Data set

Select the type of metadata record(s) to be tested

☒ Data sets and data set series

☐ Network Service

☐ Spatial Data Service

Advanced options

Provide the resource to test

Select the input type and upload or link the resource

Select an XML file or a ZIP file containing one or multiple XML files. The Maximum size of the uploaded file is 50 MB. The upload starts immediately after selecting the files. The 'Start' button is unlocked when the upload has been successfully completed.

File upload

Replace files

Dataset_metadata_2_0_example.xml (41.2 kB - xml)

Provide a label for your test report (optional)

Your test report will appear with the label below; edit the text if you wish to change it.

Test run on 09:20 - 07.07.2025 with test suite Conformance Class 8: INSPIRE data sets and data set

Start test

European Commission

English

Search

European Commission > INSPIRE >

INSPIRE registry

URI: <http://inspire.ec.europa.eu/registry>

Label: **INSPIRE registry**

Content summary: The INSPIRE infrastructure involves a number of items, which require clear descriptions and the possibility to be referenced through unique identifiers. Examples for such items include INSPIRE themes, code lists, application schemas or discovery services. Registers provide a means to assign identifiers to items and their labels, definitions and descriptions (in different languages). The INSPIRE registry provides a central access point to a number of centrally managed INSPIRE registers. The content of these registers are based on the INSPIRE Directive, Implementing Rules and Technical Guidelines.

Registry Manager: European Commission, Joint Research Centre

Insert date: 2013-05-28 15:30 PM UTC

Available formats: [XML Registry](#) [XML ISO 19135](#) [RDF/XML](#) [JSON](#) [CSV](#) [ATOM](#) [ROR](#)

Available items

Show 25 entries Showing 1 to 11 of 11 entries

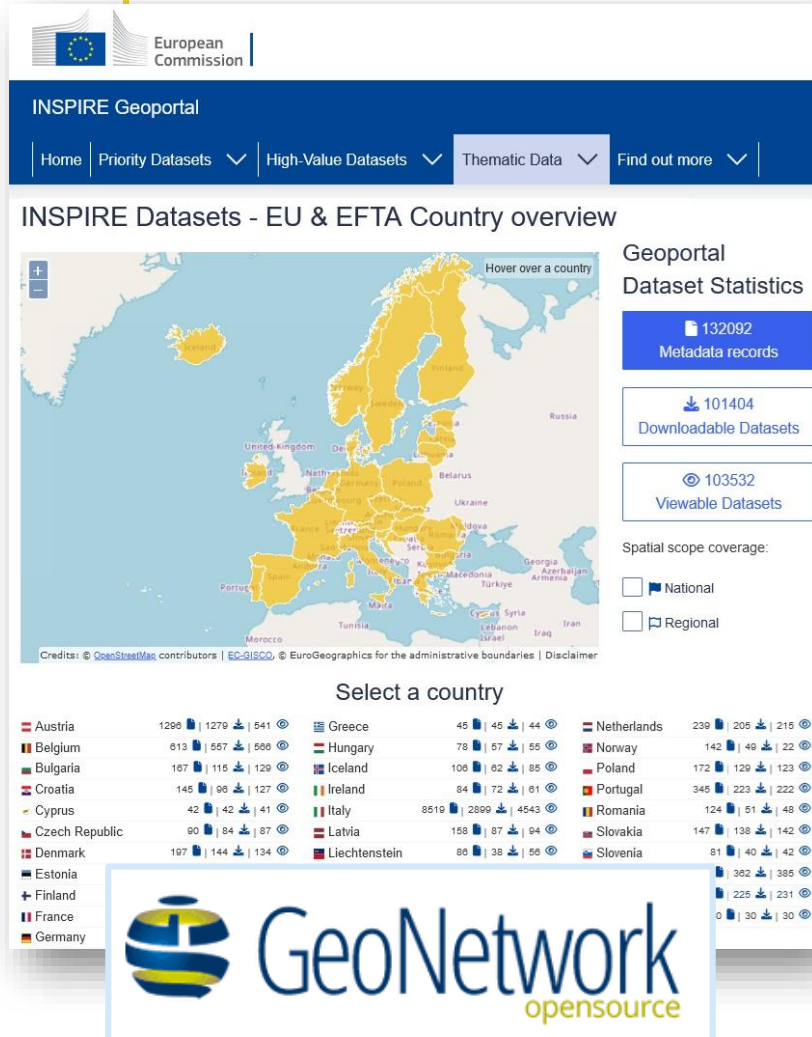
Label
INSPIRE application schema register
INSPIRE code list register
INSPIRE coordinate reference systems register
INSPIRE enumeration register
INSPIRE feature concept dictionary
INSPIRE glossary
INSPIRE layer register
INSPIRE media-types register
INSPIRE metadata code list register
INSPIRE reference document register
INSPIRE theme register

<https://inspire-geoportal.ec.europa.eu>

<https://inspire.ec.europa.eu/validator>

<https://inspire.ec.europa.eu/registry>

INSPIRE infrastructure (open source)



European Commission

INSPIRE Geoportal

Home | Priority Datasets | High-Value Datasets | Thematic Data | Find out more

INSPIRE Datasets - EU & EFTA Country overview

Geoportal Dataset Statistics

- 132092 Metadata records
- 101404 Downloadable Datasets
- 103532 Viewable Datasets

Spatial scope coverage:

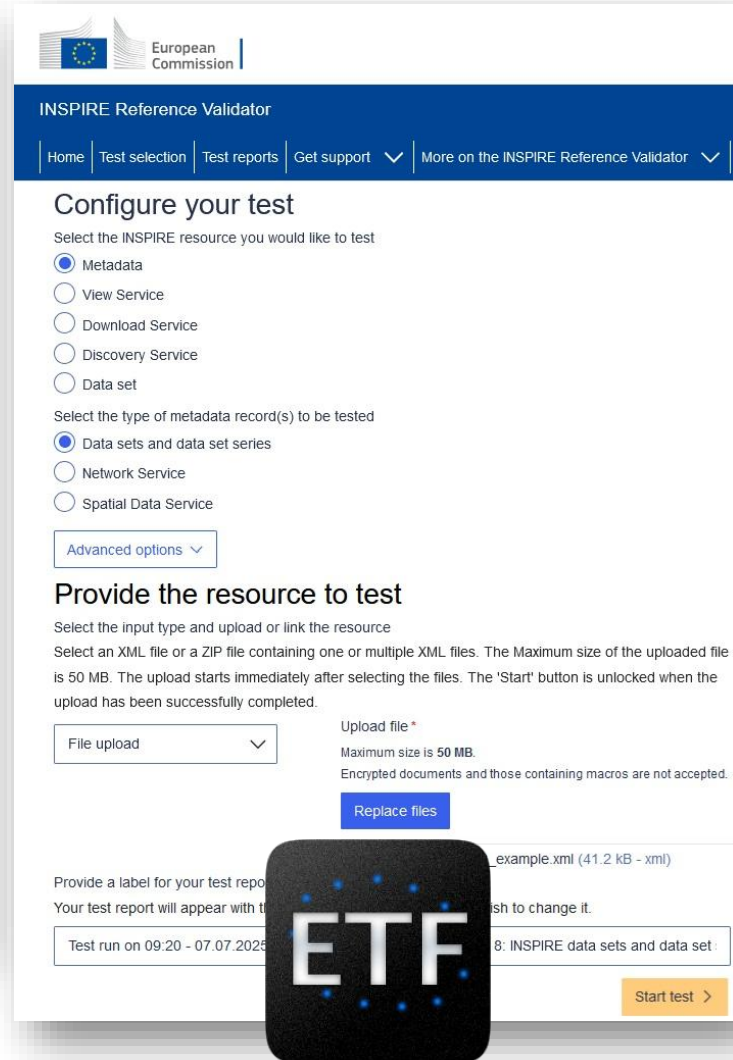
- ☐ National
- ☐ Regional

Select a country

Austria	1290	1279	541	Greece	45	45	44	Netherlands	239	205	215
Belgium	613	557	500	Hungary	78	67	55	Norway	142	49	22
Bulgaria	107	115	129	Iceland	106	62	85	Poland	172	129	123
Croatia	145	90	127	Ireland	84	72	61	Portugal	345	223	222
Cyprus	42	42	41	Italy	8519	2809	4543	Romania	124	51	48
Czech Republic	90	84	87	Latvia	158	87	94	Slovakia	147	138	142
Denmark	197	144	134	Liechtenstein	88	38	58	Slovenia	81	40	42
Estonia									382	385	
Finland									225	231	
France									0	30	30
Germany											

GeoNetwork opensource

<https://inspire-geoportal.ec.europa.eu>



European Commission

INSPIRE Reference Validator

Home | Test selection | Test reports | Get support | More on the INSPIRE Reference Validator

Configure your test

Select the INSPIRE resource you would like to test

- ☒ Metadata
- ☐ View Service
- ☐ Download Service
- ☐ Discovery Service
- ☐ Data set

Select the type of metadata record(s) to be tested

- ☒ Data sets and data set series
- ☐ Network Service
- ☐ Spatial Data Service

Advanced options

Provide the resource to test

Select the input type and upload or link the resource

Select an XML file or a ZIP file containing one or multiple XML files. The Maximum size of the uploaded file is 50 MB. The upload starts immediately after selecting the files. The 'Start' button is unlocked when the upload has been successfully completed.

File upload

Maximum size is 50 MB.
Encrypted documents and those containing macros are not accepted.

Replace files

example.xml (41.2 kB - xml)

Provide a label for your test report
Your test report will appear with the label you provide. Click on the label to change it.

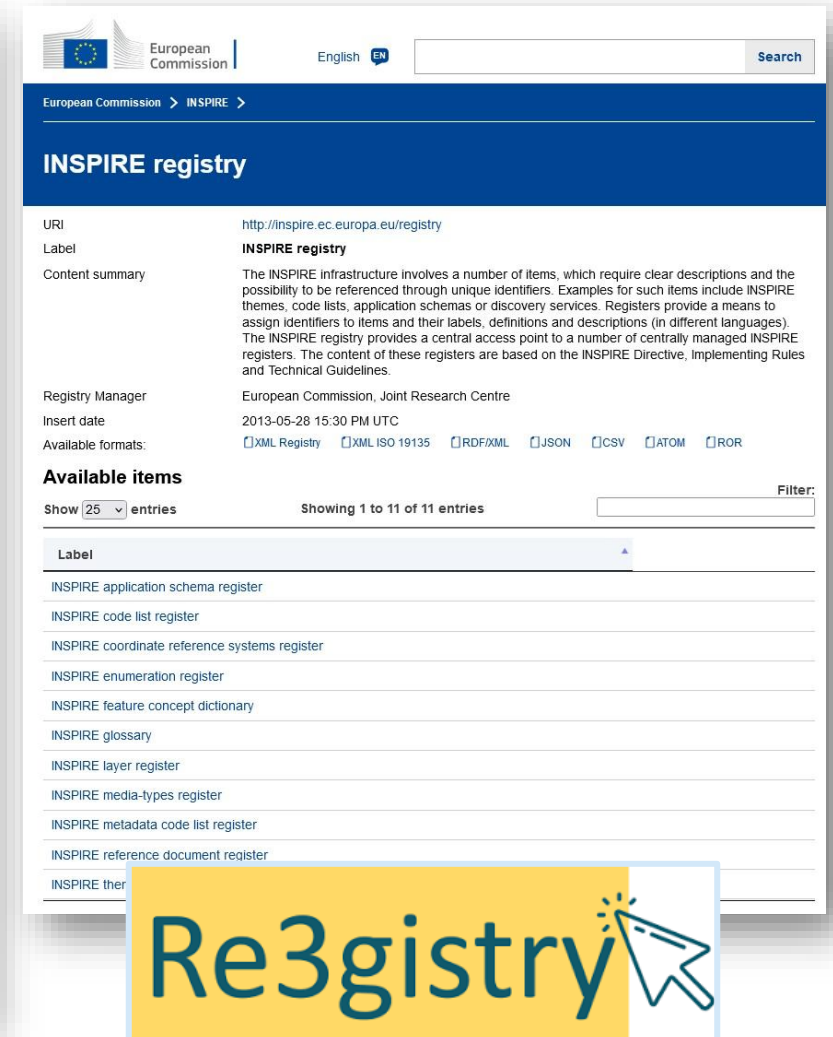
Test run on 09:20 - 07.07.2025

8: INSPIRE data sets and data set

Start test

ETF

<https://inspire.ec.europa.eu/validator>



European Commission

INSPIRE registry

URI: <http://inspire.ec.europa.eu/registry>

Label: **INSPIRE registry**

Content summary: The INSPIRE infrastructure involves a number of items, which require clear descriptions and the possibility to be referenced through unique identifiers. Examples for such items include INSPIRE themes, code lists, application schemas or discovery services. Registers provide a means to assign identifiers to items and their labels, definitions and descriptions (in different languages). The INSPIRE registry provides a central access point to a number of centrally managed INSPIRE registers. The content of these registers are based on the INSPIRE Directive, implementing Rules and Technical Guidelines.

Registry Manager: European Commission, Joint Research Centre

Insert date: 2013-05-28 15:30 PM UTC

Available formats: [XML Registry](#) [XML ISO 19135](#) [RDF/XML](#) [JSON](#) [CSV](#) [ATOM](#) [ROR](#)

Available items

Show 25 entries Showing 1 to 11 of 11 entries

Label
INSPIRE application schema register
INSPIRE code list register
INSPIRE coordinate reference systems register
INSPIRE enumeration register
INSPIRE feature concept dictionary
INSPIRE glossary
INSPIRE layer register
INSPIRE media-types register
INSPIRE metadata code list register
INSPIRE reference document register
INSPIRE ther...

Re3gistry

<https://inspire.ec.europa.eu/registry>

Open Data Directive (2019)

DIRECTIVE (EU) 2019/1024 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 20 June 2019
on open data and the re-use of public sector information
(recast)

- Aims to promote the reuse of **data from public sector** organisations
 - including for commercial applications, to stimulate societal **innovation**
- Introduces the concept of **high-value datasets**
 - datasets the **re-use** of which is associated with important **socio-economic benefits**
- To be made available
 - for **free**, under **open access** licenses (CC BY 4.0 or less restrictive)
 - in **machine-readable formats**, via **APIs** and (when relevant) as a bulk download

Implementing Act on high-value datasets

- The Directive defines 6 thematic categories of high-value datasets

Geospatial

*Earth observation
and environment*

Meteorological

Statistics

*Companies and
company
ownership*

Mobility

- The Implementing Act (2023) defines
 - the [list of high-value datasets](#) for each thematic category
 - the [requirements](#) for their provision: key attributes, granularity, formats, license, etc.

Implementing Act on high-value datasets

- The Directive defines 6 thematic categories of high-value datasets

Geospatial

*Earth observation
and environment*

Meteorological

Statistics

*Companies and
company
ownership*

Mobility

- The Implementing Act (2023) defines
 - the [list of high-value datasets](#) for each thematic category
 - the [requirements](#) for their provision: key attributes, granularity, formats, license, etc.
- Three out of the 6 categories include (static) [geospatial datasets](#)
 - datasets were on purpose defined to match the [INSPIRE scope](#)

Implementing Act on high-value datasets

- The Directive defines 6 thematic categories of high-value datasets



- The Implementing Act (2023) defines
 - the list of high-value datasets for each thematic category
 - the requirements for their provision: key attributes, granularity, formats, license, etc.
- Three out of the 6 categories include (static) geospatial datasets
 - datasets were on purpose defined to match the INSPIRE scope
- First reporting in February 2025, then every two years

Implementing Act on high-value datasets

- An example: the **Geospatial** category

1.1. Datasets in scope

The geospatial thematic category includes datasets within the scope of the INSPIRE data themes Administrative units, Geographical names, Addresses, Buildings and Cadastral parcels as defined in Annex I and Annex III to Directive 2007/2/EC of the European Parliament and of the Council ⁽¹⁾. In addition, it includes Reference parcels and Agricultural parcels as defined in Regulation (EU) No 1306/2013 of the European Parliament and of the Council ⁽²⁾ and of Regulation (EU) No 1307/2013 of the European Parliament and of the Council ⁽³⁾ and the related delegated and implementing acts ⁽⁴⁾. Their granularity, geographical coverage and the key attributes are listed in the table below. If datasets are not available at the scale indicated in the table below, but are available at higher spatial resolution(s) ⁽⁵⁾, they shall be provided at the available spatial resolution.

[illegible]

Implementing Act on high-value datasets

- An example: the **Geospatial** category

Datasets	Administrative units	Geographical names	Addresses	Buildings	Cadastral parcels	Reference parcels	Agricultural parcels
Key attributes	Unique identifier; Unit type (administrative or maritime unit); Geometry ⁽⁶⁾ ; Boundary status; National identification code; Identification code of the upper administrative level; Official name; Country code; Name in multiple languages (only for countries with more than one official language) including a language with Latin characters, when feasible.	Unique identifier; Geometry; Name in multiple languages (only for countries with more than one official language) including a language with Latin characters, when feasible; Type.	Unique identifier; Geometry; Address locator (e.g. house number); Thoroughfare (street); name; Administrative units (e.g. municipality, province, country); Postal descriptor (e.g. post code); Date of last update.	Unique identifier; Geometry (footprint of the building); Number of floors; Type of use.	Unique identifier; Geometry (boundary of cadastral parcels or basic property units ⁽⁷⁾); Parcel or basic property unit code; A reference to the administrative unit of lowest administrative level to which this parcel or basic property unit belongs.	Unique identifier; Geometry (boundary and area); Land cover ⁽⁸⁾ ; organic ⁽⁹⁾ ; Stable landscape elements ⁽¹⁰⁾ ("EFA-layer"); areas with natural/specific constraints.	Unique identifier; Geometry (boundary and area of each agricultural parcel); Land uses (crops or crop groups); Organic; Individual landscape element; Permanent grassland.

Implementing Act on high-value datasets

- An example: the Geospatial category

1.2. Arrangements for the publication and re-use

- (a) The datasets shall be made available for re-use:
 - under the conditions of the Creative Commons BY 4.0 licence or any equivalent or less restrictive open licence; **license**
 - in a publicly documented, Union or internationally recognised open, machine-readable format; **format**
 - through application programming interfaces ('APIs') ⁽¹¹⁾ and bulk download; **access mode**
 - in their most up-to-date version. **metadata**
- (b) The metadata describing the datasets within the scope of the INSPIRE data themes shall contain at least the metadata elements set out in Commission Regulation (EC) No 1205/2008. ⁽¹²⁾
- (c) For the implementation of the Reference parcels and Agricultural parcels datasets, Member States shall take into consideration the ongoing implementation of Directive 2007/2/EC as well as the obligation foreseen by Article 67(3) and 67(5) of Regulation (EU) 2021/2116.

Comparison between the requirements under the INSPIRE and Open Data Directives

	INSPIRE Directive	Open Data Directive
Scope	34 spatial data themes	almost all the 34 INSPIRE data themes
Update	most up-to-date datasets to be made available	for most of the data themes, historical data also to be made available
Granularity	no formal requirements	all existing datasets up to the scale of 1:5,000 to be made available
Access and use	no requirements on conditions	open license (CC BY 4.0 or any equivalent or less restrictive license)
Discoverability	custom ISO metadata profile	INSPIRE metadata profile
Accessibility	at least bulk download through network services (including OWS)	APIs (also including OWS) and bulk download (depending on the dataset)
Data model	custom data models for each theme	list of key attributes to be included

The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

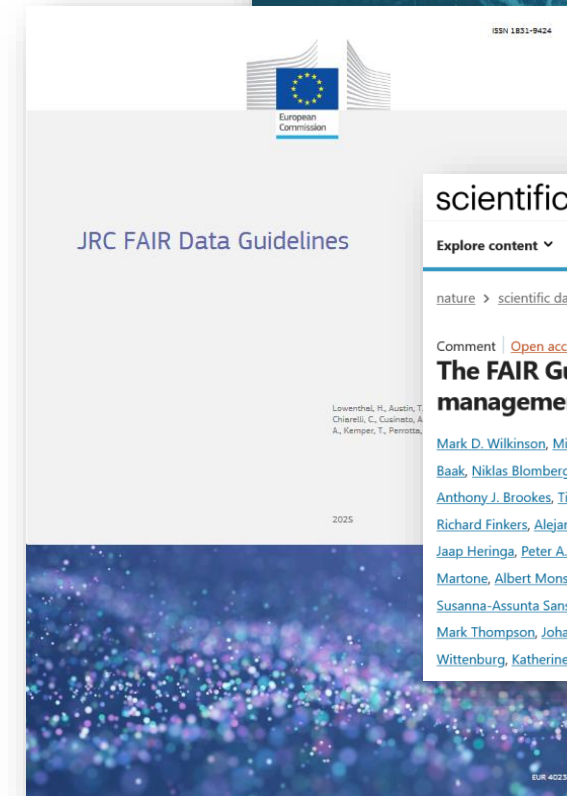
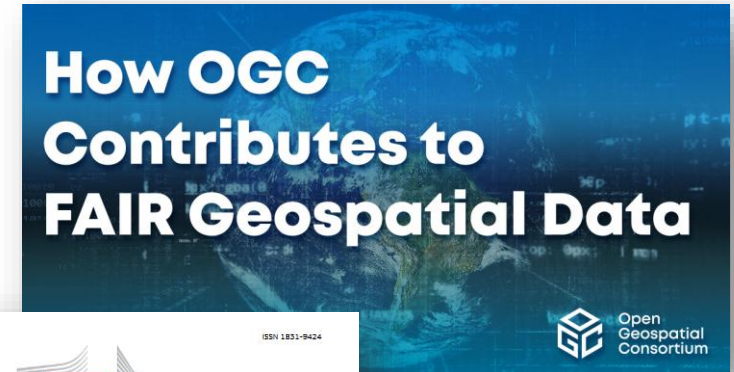
Monitoring – INSPIRE Directive

COMMISSION IMPLEMENTING DECISION (EU) 2019/1372

of 19 August 2019

implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting

- Measuring the **FAIRness** of Member States implementations



scientific data

Explore content ▾ About the journal ▾ Publish with us ▾

[nature](#) > [scientific data](#) > [comment](#) > [article](#)

Comment | [Open access](#) | Published: 15 March 2016

The FAIR Guiding Principles for scientific data management and stewardship

[Mark D. Wilkinson](#), [Michel Dumontier](#), [IJsbrand Jan Aalbersberg](#), [Gabrielle Appleton](#), [Myles Axton](#), [Arie Baak](#), [Niklas Blomberg](#), [Jan-Willem Boiten](#), [Luiz Bonino da Silva Santos](#), [Philip E. Bourne](#), [Jildau Bouwman](#), [Anthony J. Brookes](#), [Tim Clark](#), [Mercè Crosas](#), [Ingrid Dillo](#), [Olivier Dumon](#), [Scott Edmunds](#), [Chris T. Evelo](#), [Richard Finkers](#), [Alejandra Gonzalez-Beltran](#), [Alasdair J.G. Gray](#), [Paul Groth](#), [Carole Goble](#), [Jeffrey S. Grethe](#), [Jaap Heringa](#), [Peter A.C.'t Hoen](#), [Rob Hoof](#), [Tobias Kuhn](#), [Ruben Kok](#), [Joost Kok](#), [Scott J. Lusher](#), [Maryann E. Martone](#), [Albert Mons](#), [Abel L. Packer](#), [Bengt Persson](#), [Philippe Rocca-Serra](#), [Marco Roos](#), [Rene van Schaik](#), [Susanna-Assunta Sansone](#), [Erik Schultes](#), [Thierry Sengstag](#), [Ted Slater](#), [George Strawn](#), [Morris A. Swertz](#), [Mark Thompson](#), [Johan van der Lei](#), [Erik van Mulligen](#), [Jan Velterop](#), [Andra Waagmeester](#), [Peter Wittenburg](#), [Katherine Wolstencroft](#), [Jun Zhao](#) & [Barend Mons](#)  [— Show fewer authors](#)

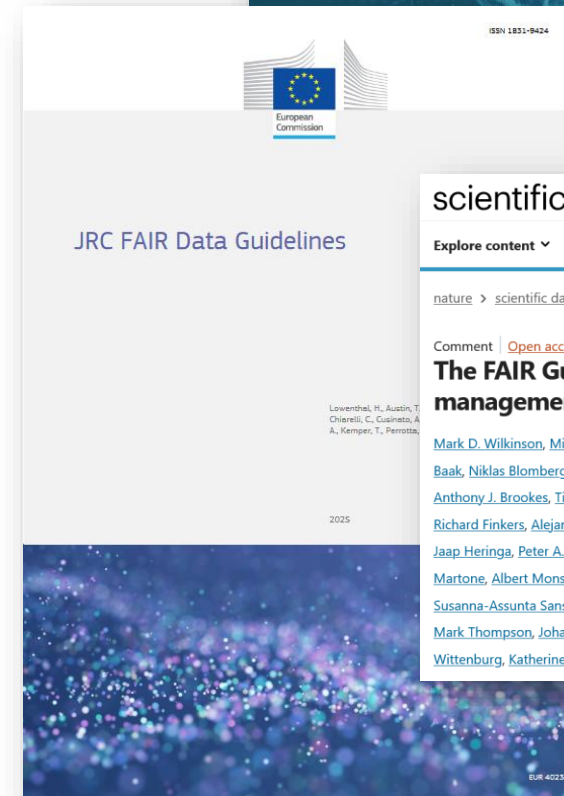
Monitoring – INSPIRE Directive

COMMISSION IMPLEMENTING DECISION (EU) 2019/1372

of 19 August 2019

implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting

- Measuring the **FAIRness** of Member States implementations
- **19 indicators** divided in 5 categories
 - availability of spatial data and services
 - conformity of metadata
 - conformity of spatial data sets
 - accessibility of spatial data sets
 - conformity of network services



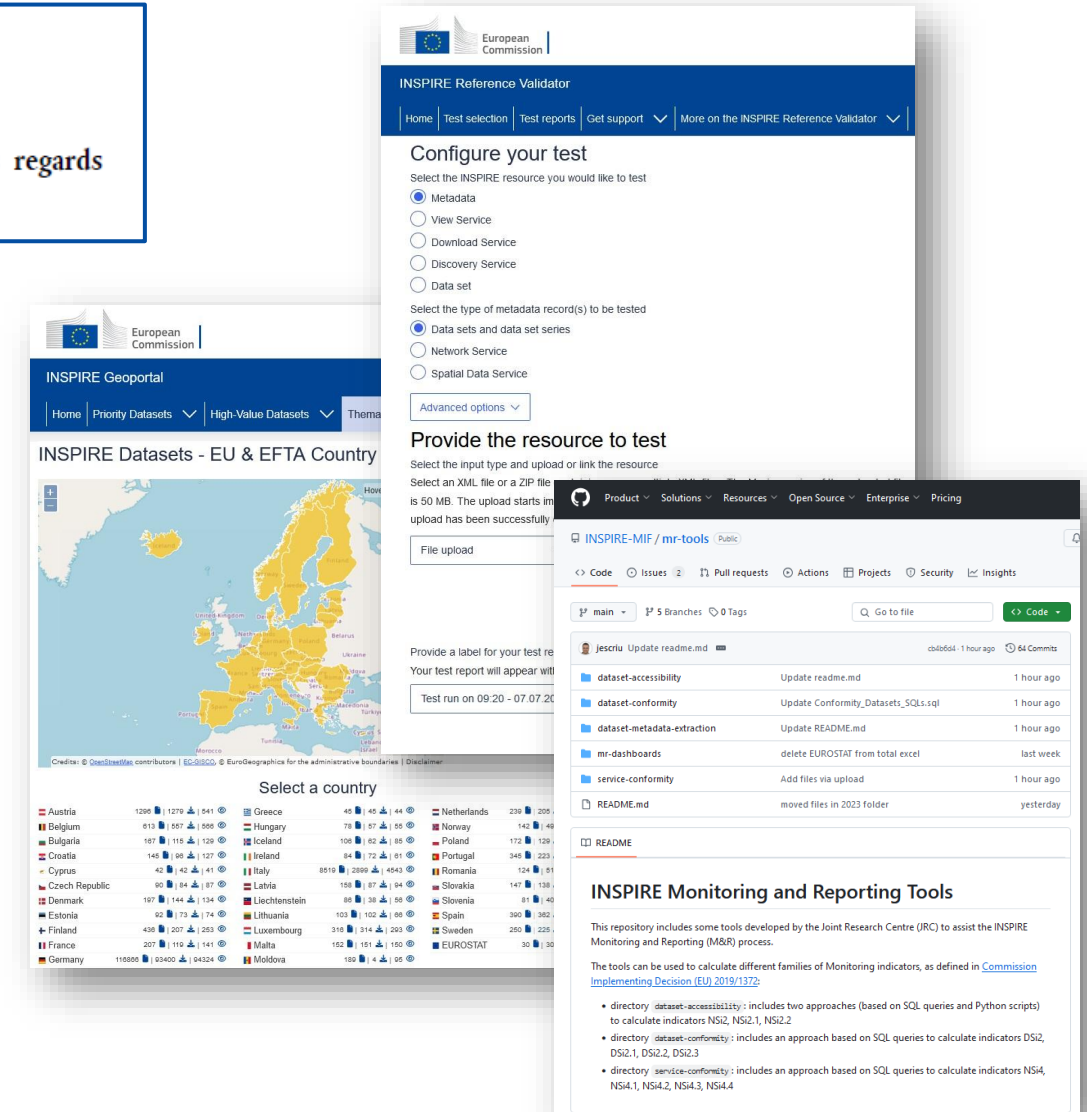
Monitoring – INSPIRE Directive

COMMISSION IMPLEMENTING DECISION (EU) 2019/1372

of 19 August 2019

implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting

- Measuring the **FAIRness** of Member States implementations
- **19 indicators** divided in 5 categories
 - availability of spatial data and services
 - conformity of metadata
 - conformity of spatial data sets
 - accessibility of spatial data sets
 - conformity of network services
- Fully **automated process** based on the INSPIRE infrastructure



The image displays three screenshots of the INSPIRE infrastructure tools:

- INSPIRE Geoportal:** A map of Europe showing the distribution of INSPIRE datasets across EU and EFTA countries. Below the map, a table lists countries and their corresponding dataset counts.
- INSPIRE Reference Validator:** A web interface for configuring and running tests on INSPIRE resources. It includes options to select the resource type (Metadata, View Service, Download Service, Discovery Service, Data set, Network Service, Spatial Data Service) and the type of metadata record(s) to be tested (Data sets and data set series, Network Service, Spatial Data Service). It also provides a section for providing the resource to test (File upload, URL, or ZIP file).
- INSPIRE-MIF/mr-tools:** A GitHub repository page for the INSPIRE Monitoring and Reporting Tools. It shows the repository's README, which describes the tools used to calculate different families of Monitoring indicators, as defined in Commission Implementing Decision (EU) 2019/1372. The README lists the following directories and their purposes:
 - `dataset-accessibility`: includes two approaches (based on SQL queries and Python scripts) to calculate indicators NSI2, NSI2.1, NSI2.2
 - `dataset-conformity`: includes an approach based on SQL queries to calculate indicators DS12, DS12.1, DS12.2, DS12.3
 - `service-conformity`: includes an approach based on SQL queries to calculate indicators NSI4, NSI4.1, NSI4.2, NSI4.3, NSI4.4

Monitoring results – INSPIRE Directive

- Median values of all indicators in the years 2019-2024:
 - overall: slow but continuous improvement

YEAR	DSi2	DSi2.1	DSi2.2	DSi2.3
2019	38%	73%	33%	35%
2020	43%	75%	47%	38%
2021	70%	87%	67%	62%
2022	73%	91%	71%	70%
2023	61%	68%	58%	59%
2024	61%	78%	64%	59%

conformity of
spatial data
sets

availability of
spatial data
and services

YEAR	DSi1.1	DSi1.2	DSi1.3	DSi1.4	DSi1.5
2019	164	142	47	0	74
2020	161	182	51	0	94
2021	167	192	55	2	109
2022	157	193	58	0	101
2023	158	205	49	0	100
2024	158	210	51	0	103

YEAR	NSi2	NSi2.1	NSi2.2
2019	16%	32%	20%
2020	32%	44%	42%
2021	45%	57%	54%
2022	50%	62%	56%
2023	56%	67%	63%
2024	66%	73%	74%

accessibility of
spatial data
sets

conformity of
metadata

YEAR	MDi1.1	MDi1.2
2019	38%	38%
2020	55%	67%
2021	78%	92%
2022	89%	90%
2023	87%	92%
2024	88%	92%

YEAR	NSi4	NSi4.1	NSi4.2	NSi4.3	NSi4.4
2019	49%	50%	46%	51%	0%
2020	71%	67%	67%	83%	0%
2021	92%	100%	94%	92%	100%
2022	92%	100%	93%	91%	0%
2023	80%	100%	93%	91%	50%
2024	80%	80%	89%	92%	50%

conformity of
network
services

Monitoring results – INSPIRE Directive




- Median values of all indicators in the years 2019-2024:
 - overall: **slow** but **continuous improvement**
 - however: indicators do not always reflect the real **usability** of the infrastructure!

<https://isprs-archives.copernicus.org/articles/XLVIII-4-W13-2025/179/2025/isprs-archives-XLVIII-4-W13-2025-179-2025.pdf>

Check my FOSS4G Europe 2025
Academic Track talk & paper!

The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLVIII-4/W13-2025
FOSS4G (Free and Open Source Software for Geospatial) Europe 2025 – Academic Track, 14–20 July 2025, Mostar, Bosnia-Herzegovina

Monitoring the FAIRness of geospatial data: Lessons learnt from the European Union

Marco Minghini ¹, Jordi Escriu ¹, Alexander Kotsev ¹

¹ European Commission, Joint Research Centre (JRC), Ispra, Italy – (marco.minghini, jordi.escriu, alexander.kotsev)@ec.europa.eu

Keywords: Data sharing, Data-driven, Geospatial, Monitoring, Spatial Data Infrastructures, Key Performance Indicators.

Abstract

The Findable, Accessible, Interoperable and Reusable (FAIR) principles were introduced to mitigate challenges in discovering, accessing and ultimately reusing data. They still represent the backbone of current, public sector-driven geospatial data infrastructures worldwide, and Key Performance Indicators (KPIs) are used to measure the progress towards their implementation. This work reflects on the experience of the European Union (EU) geospatial data infrastructure, driven by the INSPIRE and the Open Data Directive requirements. Analysing the results of the monitoring process in the last six years, we draw a number of lessons. First and foremost, the way in which KPIs are defined steers the development of an infrastructure against specific directions, and maximising the KPIs used to measure the FAIRness is not enough. A shift would be needed to more user-centric monitoring approaches, which originate from user needs and assess the actual value generated from data reuse. The analysis also demonstrated the importance of employing automated, transparent and reproducible monitoring processes powered by open source tools, as well as the need to define an inclusive governance approach grounded on a continuous involvement, dialogue and trust with the affected stakeholders.



Monitoring the FAIRness of geospatial data: Lessons learnt from the European Union

07-16, 16:30–17:00 (Europe/Sarajevo), PA01 (Quartile) 

Reporting – INSPIRE Directive

- Member States have to provide a **summary report** with a two-year frequency (*INSPIRE Directive*, amended by *Commission Decision 2024/2829*)

Article 21

- Member States shall monitor the implementation and use of their infrastructures for spatial information. They shall make the results of this monitoring accessible to the Commission and to the public on a permanent basis.
- No later than 15 May 2010 Member States shall send to the Commission a report including summary descriptions of:
 - how public sector providers and users of spatial data sets and services and intermediary bodies are coordinated, and of the relationship with the third parties and of the organisation of quality assurance;
 - the contribution made by public authorities or third parties to the functioning and coordination of the infrastructure for spatial information;
 - information on the use of the infrastructure for spatial information;
 - data-sharing agreements between public authorities;
 - the costs and benefits of implementing this Directive.

Article 1

Amendment to Directive 2007/2/EC

In Article 21(2) of Directive 2007/2/EC, the introductory part is replaced by the following:

‘No later than 31 March every two years, starting from 31 March 2025, Member States shall update, if necessary, a summary report. Those reports, which shall be made public by the Commission services, shall include summary descriptions of:’.



Reporting results – INSPIRE Directive

- Reports submitted by Member States and stored in the INSPIRE infrastructure





INSPIRE in your Country

This repository contains the Monitoring and Reporting Information (Indicators, Reports and Country fiches) of the countries implementing INSPIRE.

Member States

 Austria	 Germany	 Netherlands
 Belgium	 Greece	 Poland
 Bulgaria	 Hungary	 Portugal
 Croatia	 Ireland	 Romania
 Cyprus	 Italy	 Slovakia
 Czechia	 Latvia	 Slovenia
 Denmark	 Lithuania	 Spain
 Estonia	 Luxembourg	 Sweden
 Finland	 Malta	 United Kingdom (until 2019)*
 France		

EFTA Members

 Iceland	 Norway	 Switzerland
 Liechtenstein		

Reporting – Open Data Directive

Reporting

1. By 2 years after entry into force of this Implementing Regulation Member States shall provide the Commission with a report on the measures they have carried out to implement this Implementing Regulation. Where appropriate, the information under paragraph 3 can be provided through references to relevant metadata.
2. Each Member State shall provide an updated version of the report upon the request of the Commission which should be made every 2 years.
3. The report shall contain the following information:
 - (a) a list of specific datasets at Member State level (and, where relevant, subnational level) corresponding to the description of each high-value dataset in the Annex to this Regulation and with online reference to metadata that follow existing standards, such as a single register or open data catalogue;
 - (b) persistent link to the licensing conditions applicable to the re-use of high-value datasets listed in the Annex to this Regulation, per dataset referred to in point a);
 - (c) persistent link to the APIs ensuring access to the high-value datasets listed in the Annex to this Regulation, per dataset referred to in point a);
 - (d) where available, guidance documents issued by the Member State on publishing and reusing their high-value datasets;
 - (e) where available, the existence of data protection impact assessments carried out in accordance with Article 35 of Regulation (EU) 2016/679;
 - (f) the number of public sector bodies exempted in accordance with Article 14(5) of Directive (EU) 2019/1024.

Reporting – Open Data Directive

Reporting

1. By 2 years after entry into force of this Implementing Regulation Member States shall provide the Commission with a report on the measures they have carried out to implement this Implementing Regulation. Where appropriate, the information under paragraph 3 can be provided through references to relevant metadata.
2. Each Member State shall provide an updated version of the report upon the request of the Commission which should be made every 2 years.
3. The report shall contain the following information:
 - (a) a list of specific datasets at Member State level (and, where relevant, subnational level) corresponding to the description of each high-value dataset in the Annex to this Regulation and with online reference to metadata that follow existing standards, such as a single register or open data catalogue;
 - (b) persistent link to the licensing conditions applicable to the re-use of high-value datasets listed in the Annex to this Regulation, per dataset referred to in point a);
 - (c) persistent link to the APIs ensuring access to the high-value datasets listed in the Annex to this Regulation, per dataset referred to in point a);
 - (d) where available, guidance documents issued by the Member State on publishing and reusing their high-value datasets;
 - (e) where available, the existence of data protection impact assessments carried out in accordance with Article 35 of Regulation (EU) 2016/679;
 - (f) the number of public sector bodies exempted in accordance with Article 14(5) of Directive (EU) 2019/1024.

- In February 2025
 - reports submitted by **24 Member States**, still under processing
 - heterogeneous picture – geospatial high-value datasets not in all cases coinciding with those reported under INSPIRE ⁽¹⁾
- Monitoring and reporting processes **take time!**
 - legal, organisational and technical efforts needed

⁽¹⁾ Cross-comparison of environmental datasets made available and accessible under HVD and INSPIRE: Preliminary findings. Presented at the 20th INSPIRE MIG meeting, 5 May 2025. <https://europa.eu/!xCmvVb> (accessed 9 July 2025)

What has really changed?

- Several geospatial datasets traditionally 'closed' are finally **open**!
 - Italy:
 - cadastral parcels – formerly available at €40 per vector sheet, i.e. €12M for the ~300,000 total sheets ⁽²⁾
 - National Archive of Urban Street Numbers ⁽²⁾
 - Germany
 - orthophotos at 20cm resolution
 - ... and many others!

Dati territoriali "aperti", attivi i primi servizi dell'Agenzia

24 Febbraio 2025

In formato aperto, le informazioni sulle particelle rappresentate nella cartografia catastale, gli stradari e gli indirizzi presenti nell'Archivio nazionale dei numeri civici delle strade urbane



L'Agenzia delle entrate ha pubblicato i [servizi](#) in *open data* relativi alle particelle catastali e agli indirizzi, nella prospettiva di fornire servizi efficaci ed efficienti per tutti gli utenti e dando attuazione a quanto richiesto dalla normativa europea e nazionale.

Servizi e Dataset

Le informazioni sui servizi e sulle serie di dati di "elevato valore" resi disponibili sono pubblicate nel Repertorio

nazionale dei dati territoriali (www.geodati.gov.it), da cui confluiscono nel Catalogo nazionale dei dati aperti (www.dati.gov.it).

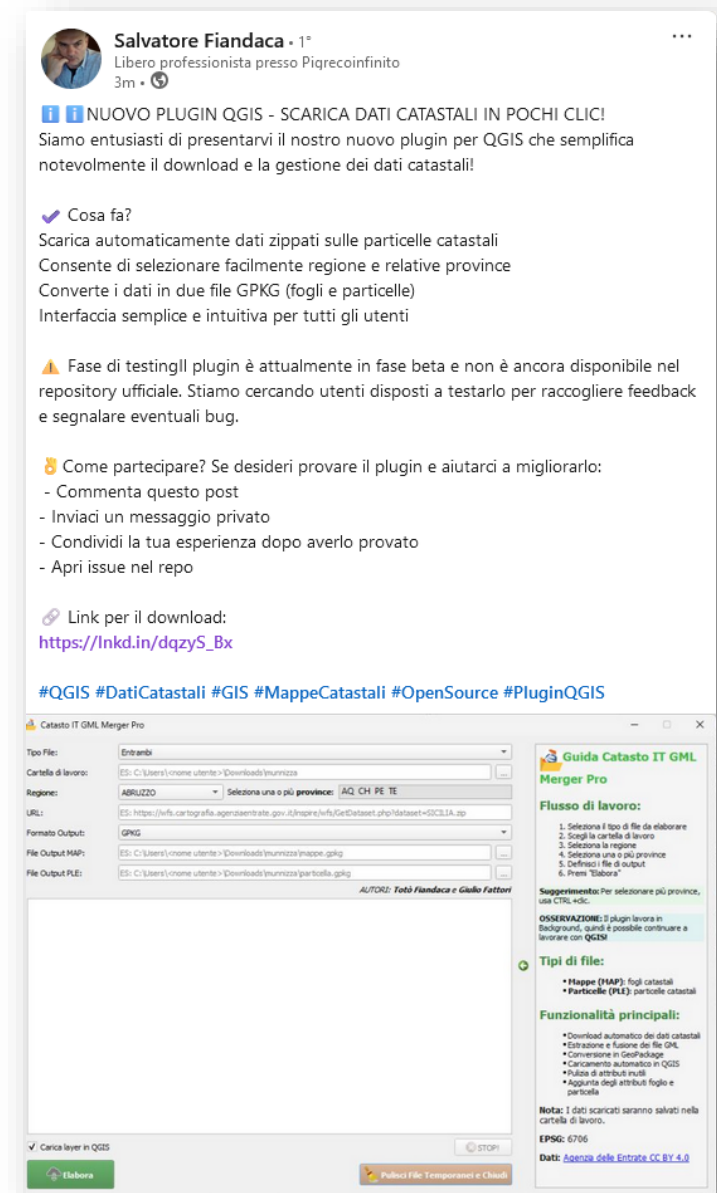
Le serie di dati di elevato valore relative alle "Particelle catastali" e agli "Indirizzi" sono rese disponibili, per il riutilizzo a fini commerciali o non commerciali, in formato aperto, in conformità con la licenza Creative Commons BY 4.0, in formato aperto e aggiornato.



⁽²⁾ Weckmüller D. (2024) Evolution of land monitoring services based on Earth Observation in Italy. <http://dx.doi.org/10.13140/RG.2.2.14557.12001>

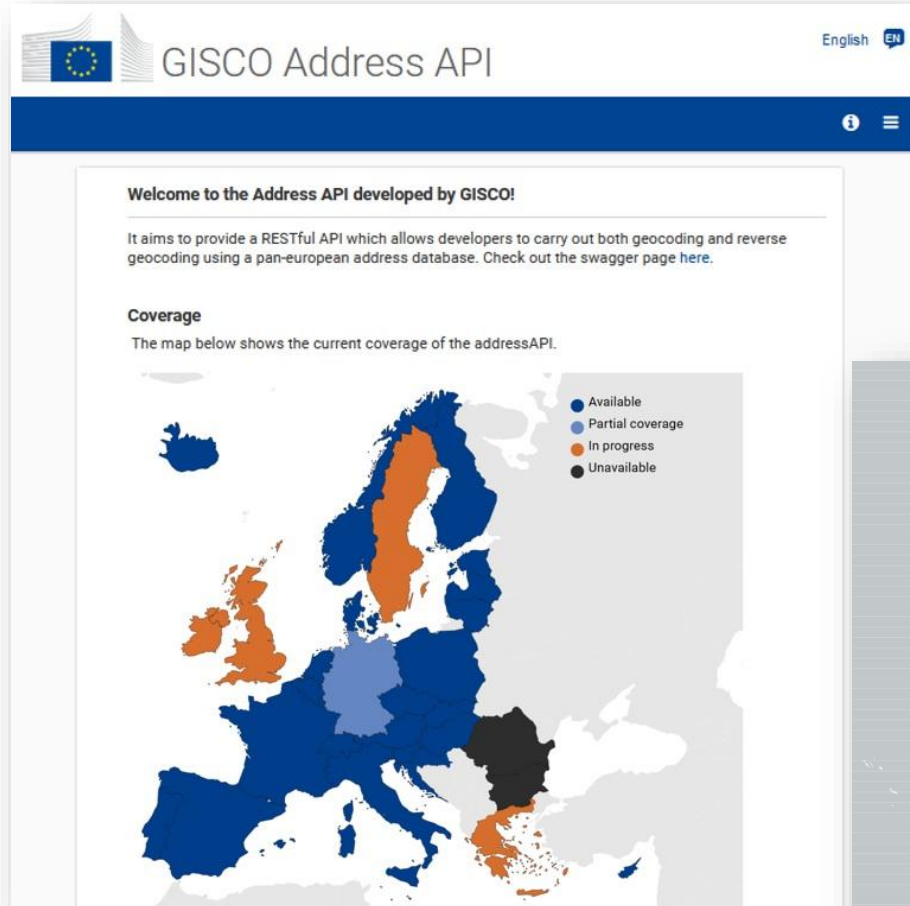
What has really changed?

- Several geospatial datasets traditionally 'closed' are finally **open**!
 - Italy:
 - cadastral parcels – formerly available at €40 per vector sheet, i.e. €12M for the ~300,000 total sheets ⁽²⁾
 - National Archive of Urban Street Numbers ⁽²⁾
 - Germany
 - orthophotos at 20cm resolution
 - ... and many others!

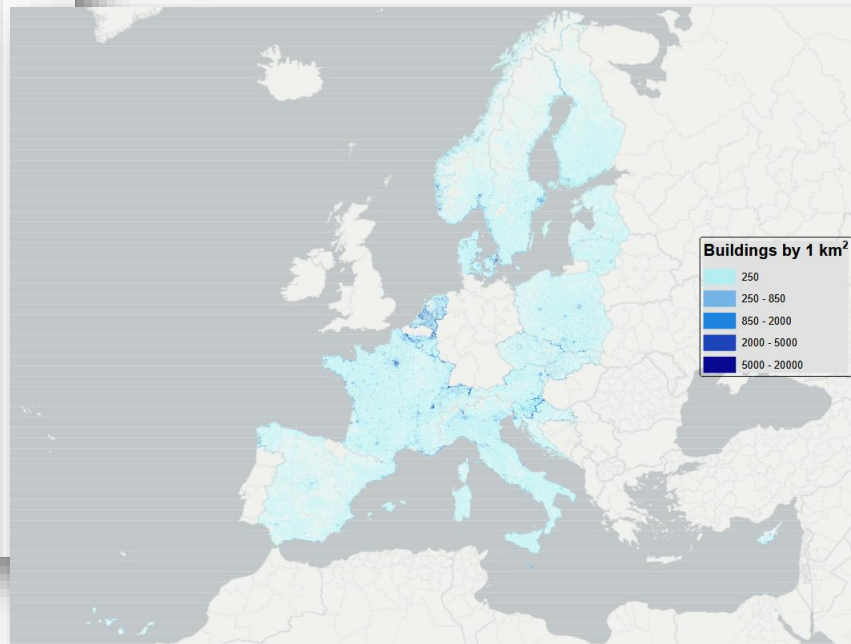


⁽²⁾ Weckmüller D. (2024) Evolution of land monitoring services based on Earth Observation in Italy. <http://dx.doi.org/10.13140/RG.2.2.14557.12001>

What has really changed?



- Increasing availability of high-value datasets for building the SDI/reference geographic information of the European Commission & EU bodies & related services for policy support ⁽³⁾



⁽³⁾ Updates from the ESTAT GISCO team. Presented at the 82nd INSPIRE MIG-T meeting, 27 June 2025. <https://europa.eu/l9cvpwP> (accessed 9 July 2025)

Alignment – Legal perspective

- **GreenData4All** initiative
 - make public sector environmental data more **accessible** & aligned to **user needs**, to effectively contribute to the **European Green Deal data space**
 - make the existing legal framework on geospatial data (INSPIRE Directive) **future-proof** and **aligned** with EU horizontal data legislation
- **INSPIRE evaluation** (2022)
 - strong contribution to improving data sharing in the EU
 - still relevant for addressing data sharing obstacles
 - implementation gaps remain, organisational & technical issues
 - potential for modernisation/simplification
- **INSPIRE** possible **revision**

Alignment – Technical perspective

- Ongoing work to **facilitate integration** between requirements from the INSPIRE and Open Data Directives
 1. **pilot** with 9 Member States and 4 European Commission services, to
 - define a good practice for **tagging high-value datasets** in metadata
 - develop, test and assess the suitability of a **transformation** of geospatial INSPIRE metadata (based on ISO 19139) to metadata based on DCAT – particularly **GeoDCAT-AP 3.0.0** and its XSLT transformation

INSPIRE GeoDCAT-AP Pilot

This repository is intended to store, share and manage documentation and information relative to the **ISO & GeoDCAT-AP metadata Implementation Pilot**, carried out by the INSPIRE community.

Pilot description

The GeoDCAT-AP pilot is one of the activities aimed at modernising the implementation of European environmental geospatial data sharing under the [GreenDataForAll](#) initiative (revision of the [INSPIRE Directive](#)), aligning it to the [Commission Implementing Regulation \(EU\) 2023/138 on Open Data High-Value Datasets](#).

Its main purpose is facilitating the integration of INSPIRE metadata, and the corresponding reporting obligations, into a common Open Data flow, centralising the INSPIRE and High-Value Datasets reporting in the [European Data Portal](#) (DEU). In particular, the pilot is intended to test and evaluate the adequacy of the transformation of geospatial (ISO 19139-based) metadata into a DCAT-based metadata using the [GeoDCAT-AP 3.0.0](#) specification and its related [XSLT transformation](#).

The pilot is carried out as part of the activities of the INSPIRE Maintenance and Implementation Work Programme (MIWP) [2021-2024](#) and [2025-2026](#).

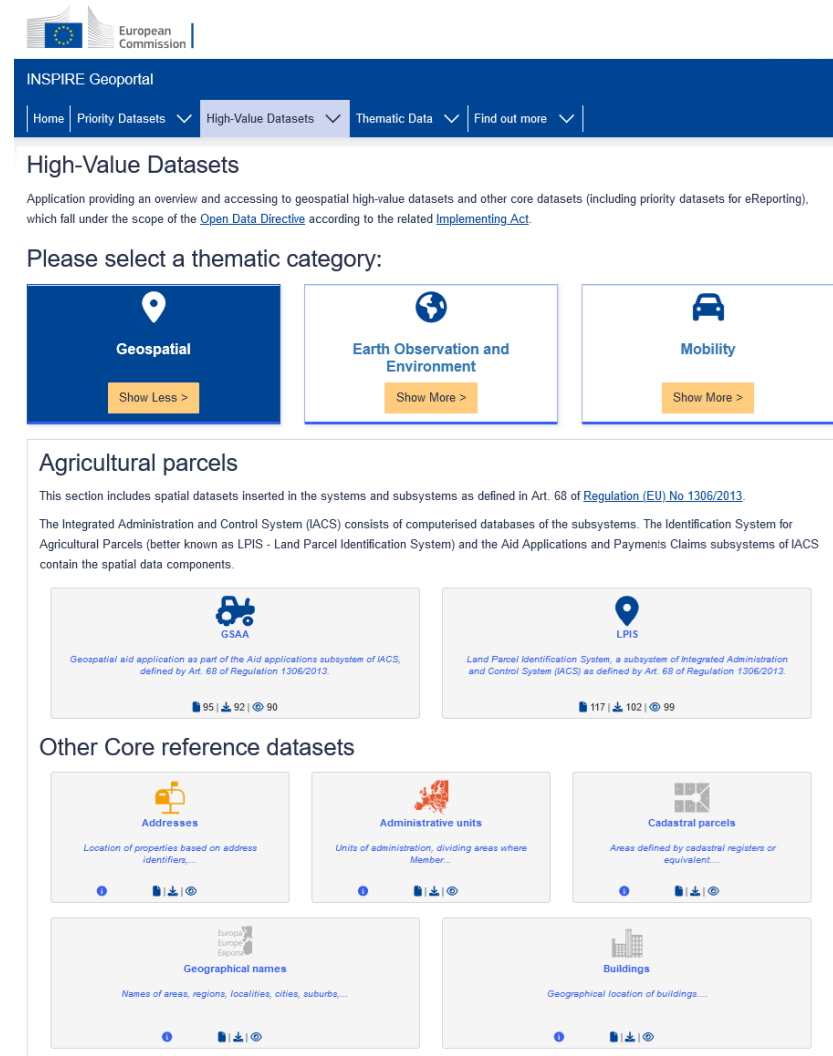
For more information about the pilot, its purpose, objectives and outputs/results and expected benefits, please read the [Pilot Concept Note](#).

Participants

- **Member States:** Belgium (BE-Flanders), Czech Republic (CZ), Denmark (DK), Italy (IT), Finland (FI), France (FR), the Netherlands (NL), Spain (ES), Slovakia (SK).
- **European Commission:** Publications Office of the European union (OP), Directorate-General for Digital Services SEMIC Group (DIGIT-SEMIC), Directorate-General Joint Research Centre (JRC).

Alignment – Technical perspective

- Ongoing work to facilitate integration between requirements from the INSPIRE and Open Data Directives
- 2. INSPIRE **Geoportal section** providing access to geospatial high-value datasets
- 3. discussion on including ad hoc **geospatial capabilities** in the European open data portal



Thank you!



marco.minghini@ec.europa.eu



© European Union 2025

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.