

BeGeo 2026

24/03/2026 - Brussels Expo

La géo-intelligence au service de la résilience
Geo-intelligentie voor een veerkrachtige toekomst

INSPIRE: past, present and future in a new European landscape

A JRC perspective

Marco Minghini – European Commission, Joint Research Centre

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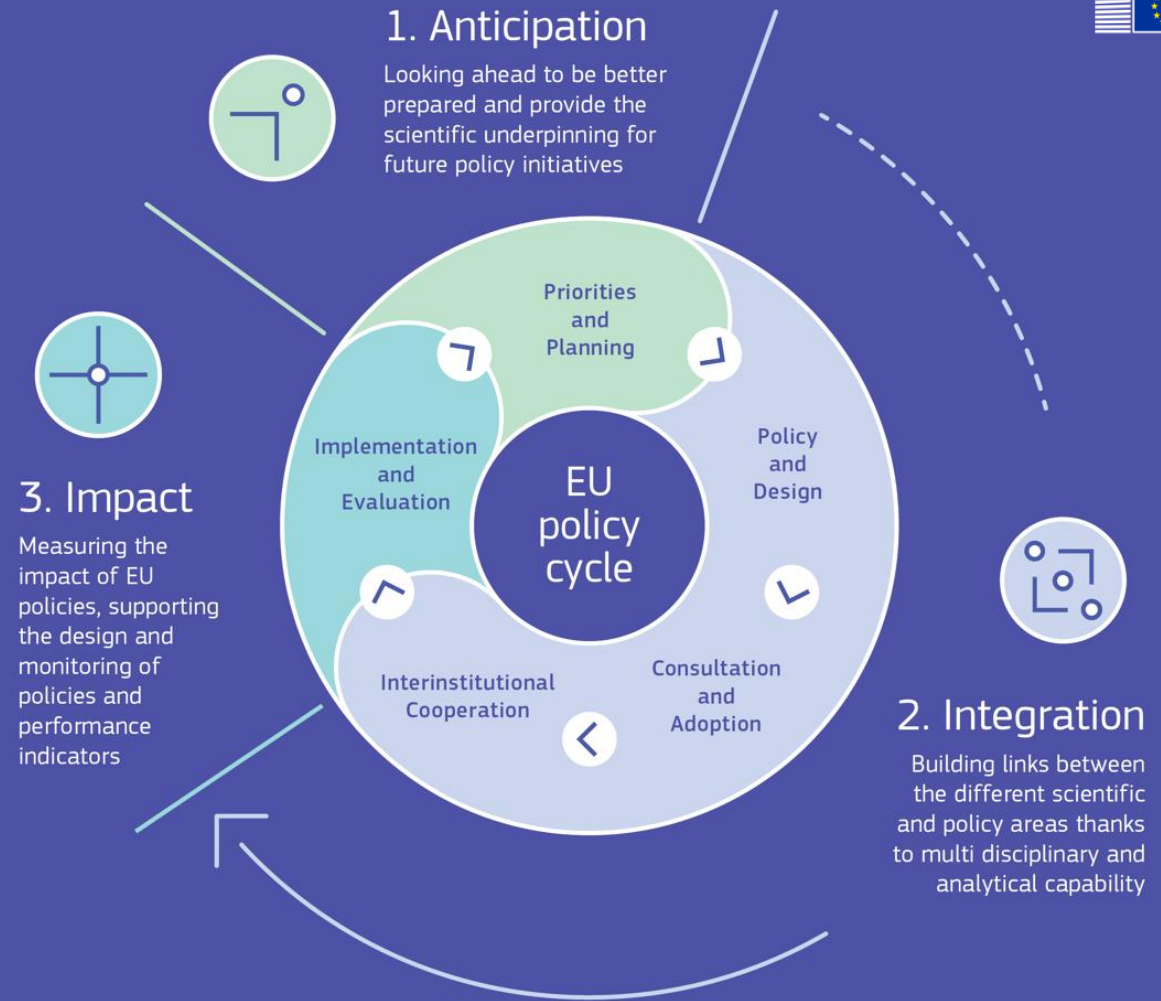
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The JRC in a nutshell

Science for policy

The Joint Research Centre provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society



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INSPIRE – From past to future

The INSPIRE Directive

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)

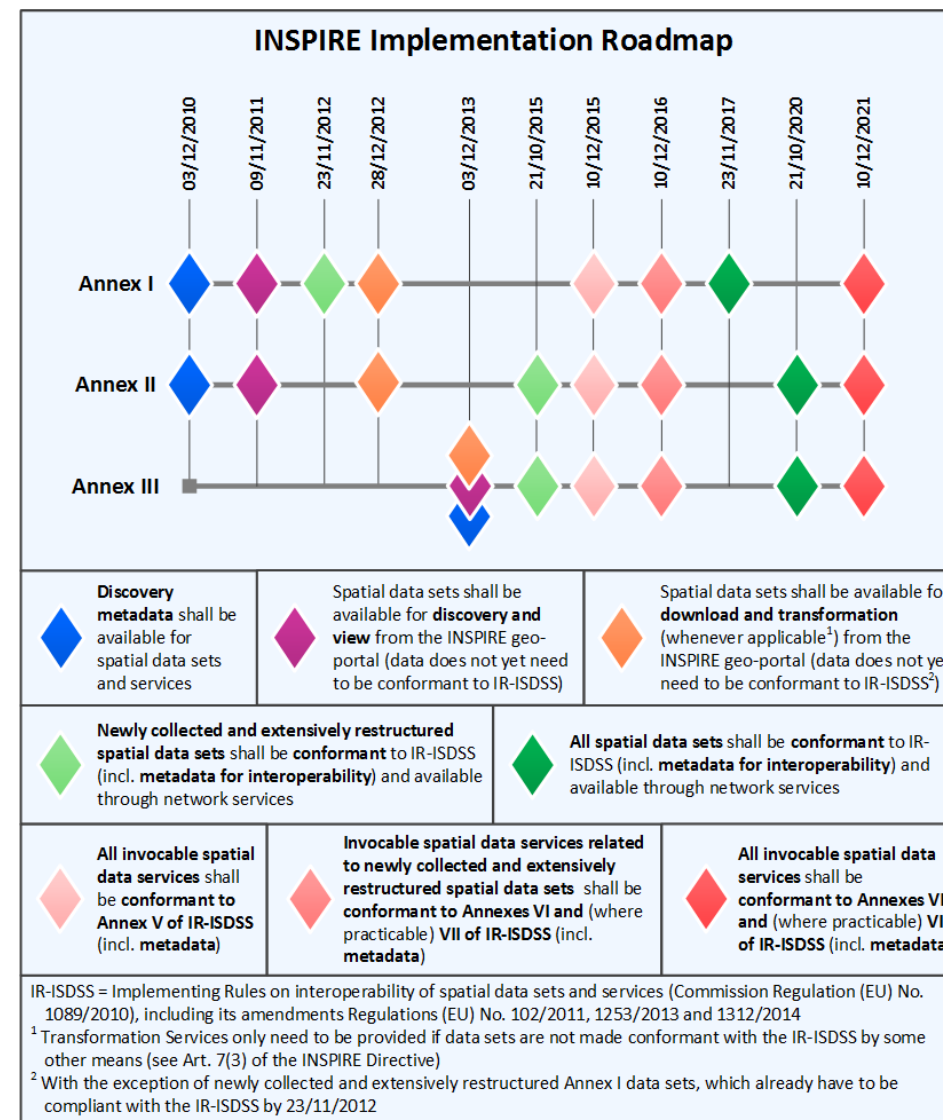


- In force since 2007 to address issues in EU **geospatial data sharing**
- Goal – an SDI to support EU **environmental policy**
 - a legal, technical & organizational framework
- **Evaluation** (2022) and **revision** (2025-ongoing)

<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32007L0002>

INSPIRE – The origin

- Addressing several data sharing aspects in a consistent roadmap (originally) until 2021
 - data **discoverability**
 - data **accessibility**
 - data (and service) **interoperability**



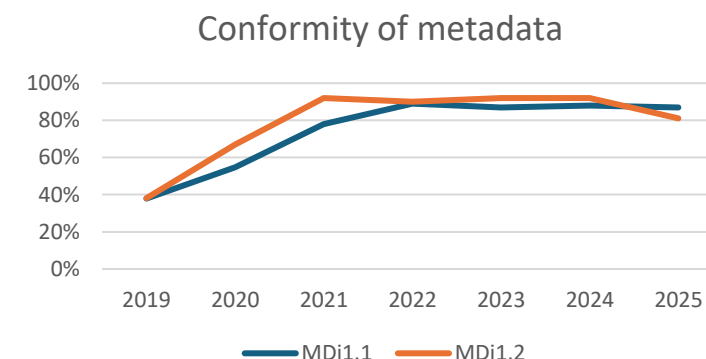
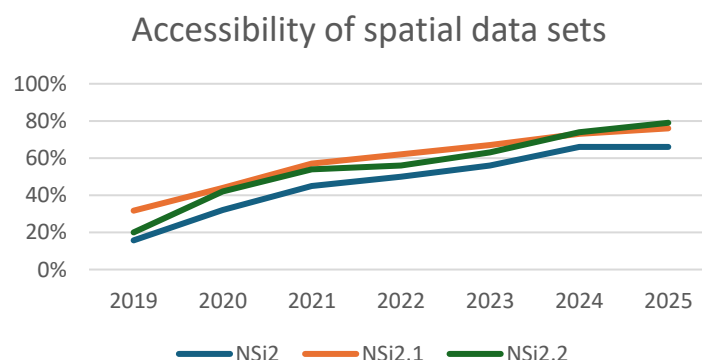
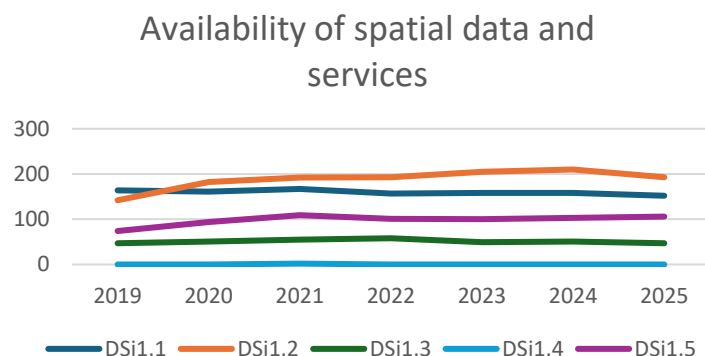
INSPIRE – The present

- INSPIRE is **the biggest effort** in geospatial data sharing ever undertaken
 - a recognized brand & reference initiative worldwide
 - around **10k organisations** involved
 - **120k+ datasets** accessible in the Geoportal
 - on average **300 daily tests** in the Validator
 - on average **60k daily calls** to the Registry from **3500 users**
 - ...

INSPIRE – What did we learn

Implementation of legal framework

- ✔
 - Availability, accessibility and conformity gradually growing
 - a **process** rather than a product




Implementation of legal framework

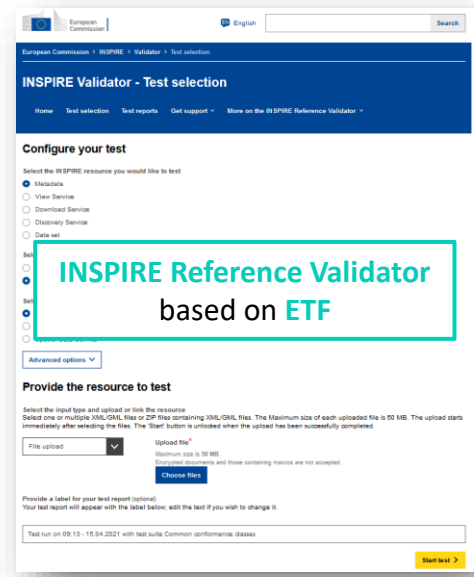
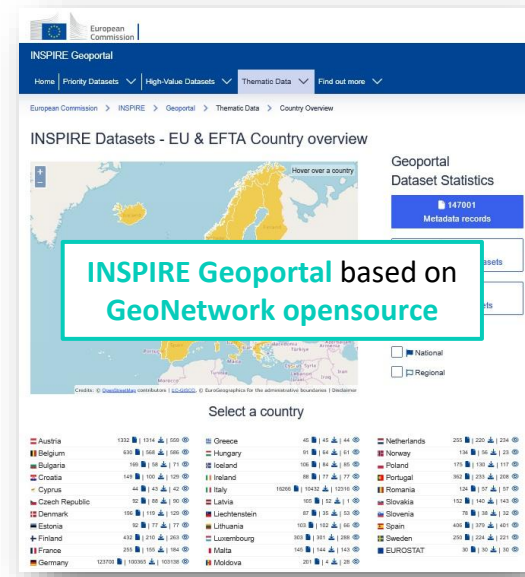
- ✓ Availability, accessibility and conformity gradually growing
 - a **process** rather than a product
- ✗ INSPIRE implementation still **heterogeneous** across Member States
 - no single country has yet reached full implementation!
- ✗ Parallel implementations
 - many Member States only shared a **limited number** of their datasets
 - **reason**: INSPIRE requirements different than national ones
 - **result**: available data is heterogeneous across Europe, usability is limited

Governance approaches



- ✓ Inclusive and **open governance approach** since the beginning
 - broad spectrum of users & implementers
- ✗ INSPIRE MIG for organisational, legal and technical matters – but
 - exclusively represented by data providers
 - not always flexible and fast in accommodating novelties
- ✓ Agile, **community-driven** governance approaches were successful
 - INSPIRE Good Practices
 - governance of INSPIRE artefacts

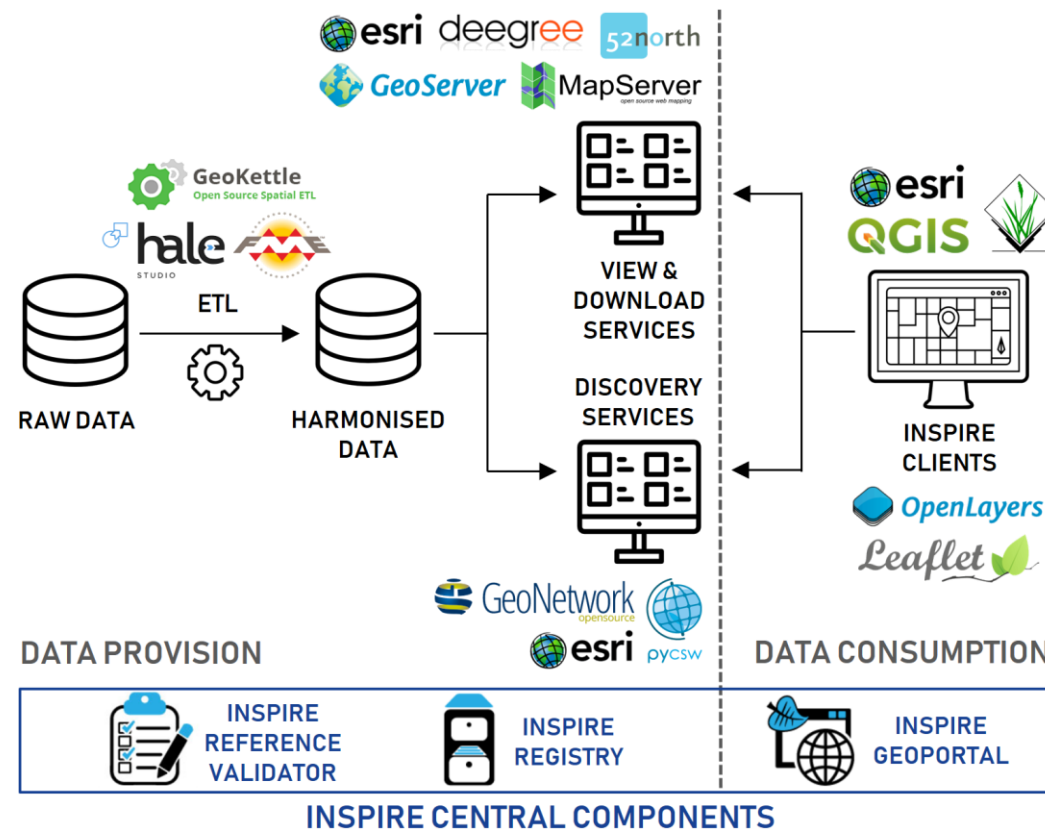
Technological stack

- 
 • INSPIRE (legal framework) as a **catalyst** for technological innovation
 - **central components** based on reusable, open source software solutions



Technological stack

- 
 • INSPIRE (legal framework) as a **catalyst** for technological innovation:
 - 
 • **central components** based on reusable, open source software solutions
- Huge impact on GIS software development




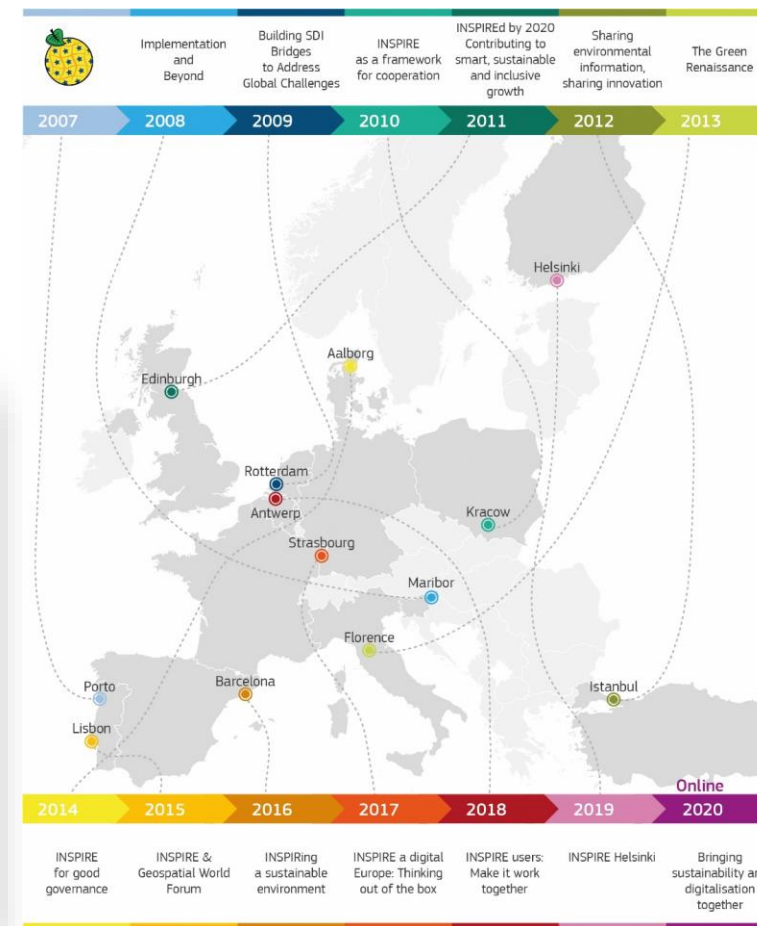
Impact on standardisation

- INSPIRE is by nature based on open **standards** – probably the largest uptake of OGC standards worldwide!
- ✓ • **benefits** for all players: data providers, users & standardisation bodies
- ✗ • **problems** of slowing down the implementation process
- Only mature and **well-supported standards** should be considered for INSPIRE technical provisions



Community

- 
 • A technical infrastructure is only as good as the **social** infrastructure underpinning it



KPIs for monitoring progress

- ✘ KPIs only measuring FAIRness do not reflect the real value of the infrastructure
 - provider-centric vs. **user-centric KPIs**
 - no **quality**/topological checks
 - self-declarations to be avoided
- ✔ automated & transparent process based on open source software
- ✔ clear **governance** & trusted **community**

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

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

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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.

INSPIRE – What's next

Policy and technological context

- **Data**-related policies and legislation
 - European strategy for data (2020) & Data Union Strategy (2025)
 - Data Act, Data Governance Act, Open Data Directive, Implementing Act on high-value datasets & data spaces
- **Simplification** agenda
- New **data sources**: IoT, Earth Observation, citizen-generated data, FAIR data, etc.
- New **technology trends**: AI, APIs, agile standards, cloud/edge/fog architectures

Open Data Directive and high-value datasets

- High-value datasets
 - datasets the **re-use** of which is associated with important **socio-economic benefits**
 - to be made available **for free**, under **open license** (CC BY 4.0 or less restrictive), in **machine-readable formats**, via **APIs** and (when relevant) as bulk downloads
- Categories of high-values datasets



INSPIRE revision – GreenData4All

- Commission **evaluation** (2022)
 - benefits, **relevance** and **simplification** potential of the Directive
- Commission proposal for **revision** (2025)
 - part of the Environmental Omnibus
 - **simplification** and **alignment** with the Open Data Directive
 - currently in negotiation with Parliament and Council



INSPIRE revision – in a nutshell

- Removal of
 - **interoperability** and network service requirements
 - obligation on the Commission to operate a **geoportal**
 - data sharing requirements & condition to apply **charges**
 - **monitoring and reporting** obligations
- Keeping
 - **metadata**
 - **coordination** mechanisms
 - Annexes I-III (no harmonisation rules)



image generated through AI

What can we expect?

- A continued **negotiation** of the proposal
 - with co-legislators and the INSPIRE governance (MIG)
- A **vision** (next WP) centered on keeping/leveraging what works well
 - increased data availability, discoverability and accessibility/reuse
 - **reduced burden** on Member States
 - from interoperability by design to **interoperability on demand**
 - **extended governance** to facilitate innovation
 - co-created, **community-driven** approaches

Thank you!



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