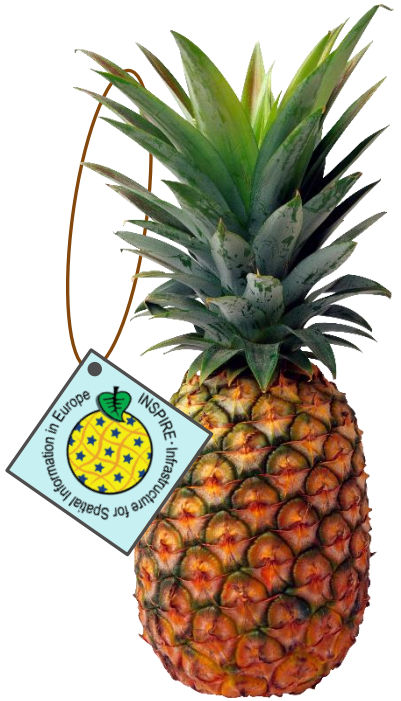
What is new in INSPIRE?

An organisational and technological perspective

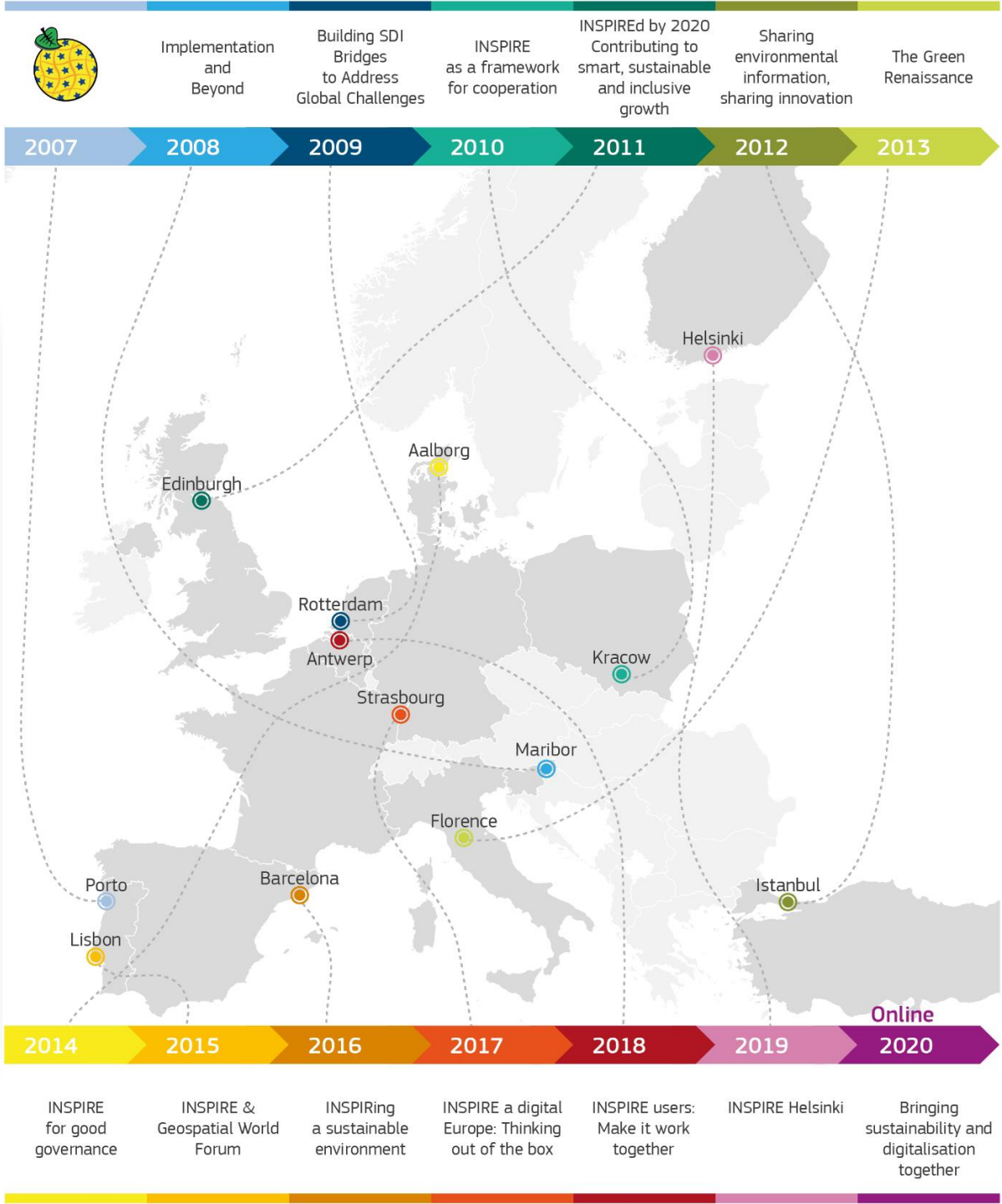
JRC-EC INSPIRE Team

INSPIRE
The geospatial pineapple

- One of the biggest geospatial data sharing initiatives in the world (**7000+ providers)**.
- **Multi-faceted Spatial Data Infrastructure** framework
  - **Legal**: Directive, Implementing provisions, transposition in MS.
  - **Organisational**:
    - Governance structure with National contact points / structures, Multiple Commission Services.
    - Maintenance and Implementation Work programme;
  - **Technical**: Reusing building blocks from standardisation bodies (OGC, ISO, etc.)
    - Full stack of guidelines for discoverability, metadata, data encoding and data sharing.
- **Status of implementation**
  - Directive entered into force in 2007 / Roadmap finished by December 2021.
  - **Lights and shadows**. Objectives partially achieved. Heterogeneity of implementations across EU. Pan European coverage yet do be achieved.

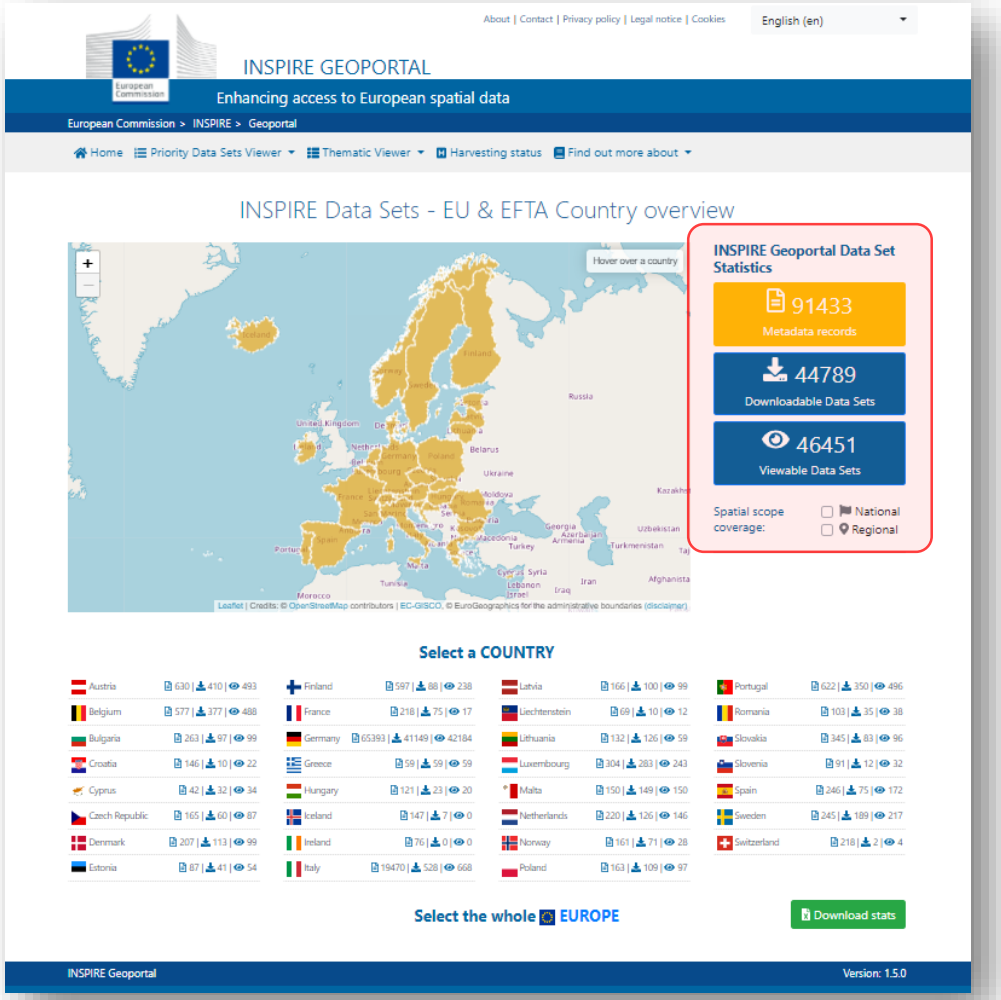


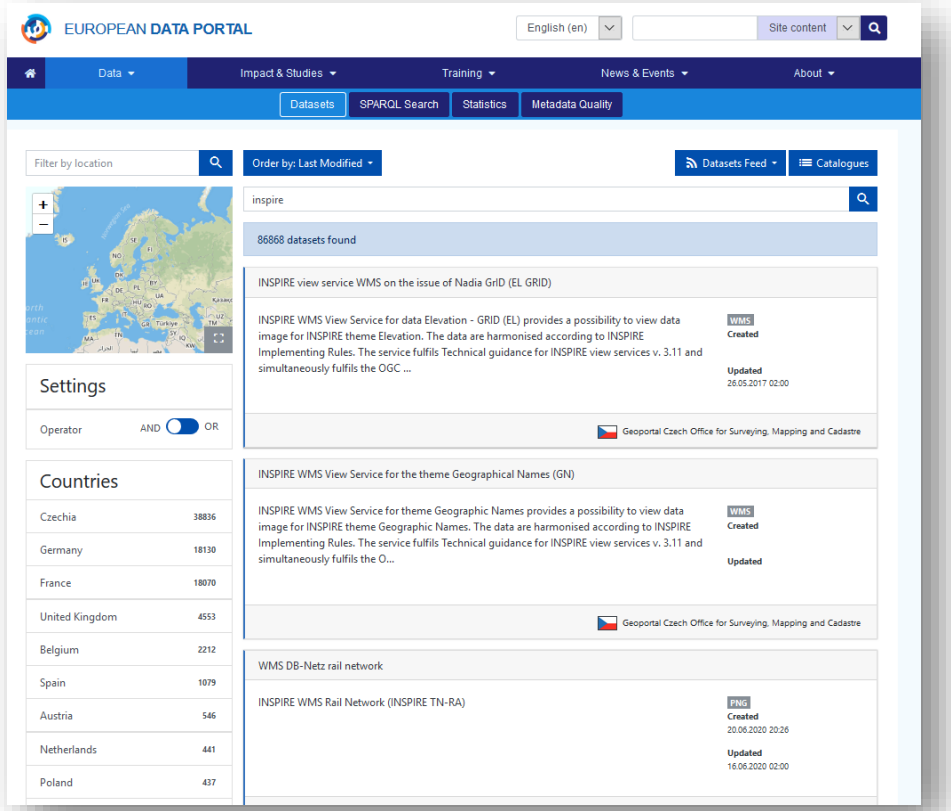
Lights - What works well
Community



Lights - What works well
Data availability & E-reporting

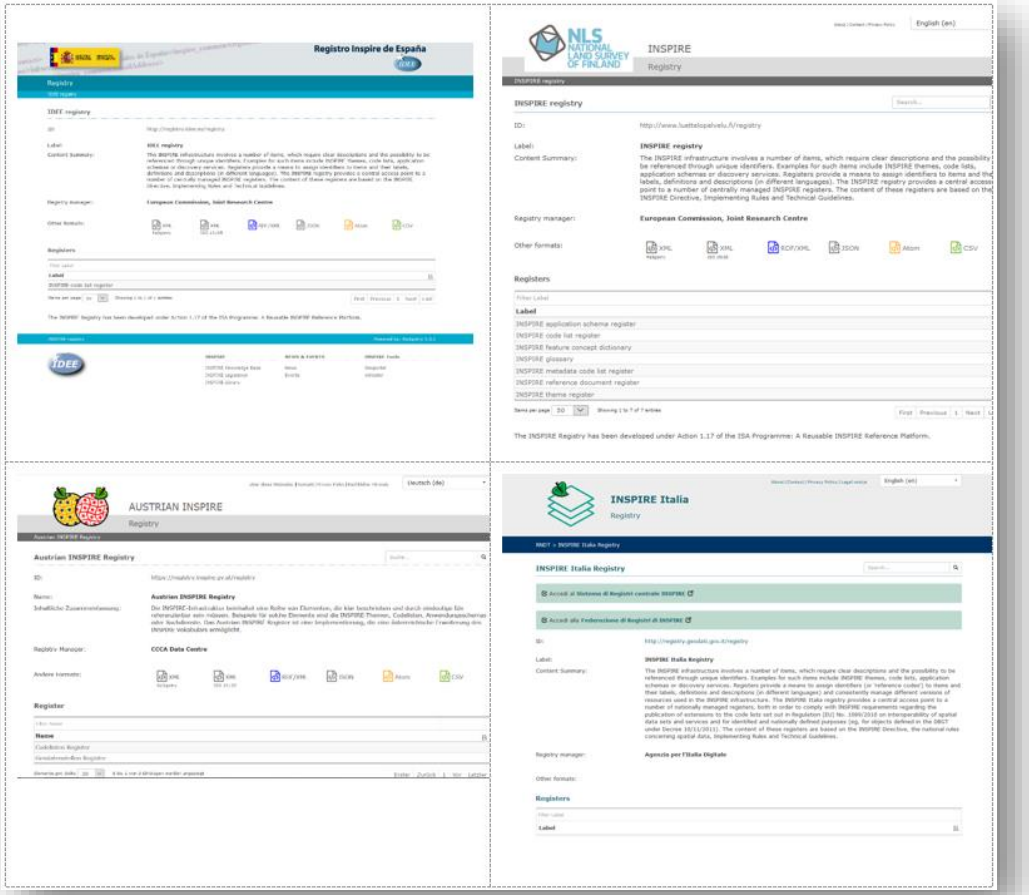
- Discoverability and accessibility are improving.
- Use of INSPIRE in e-reporting.

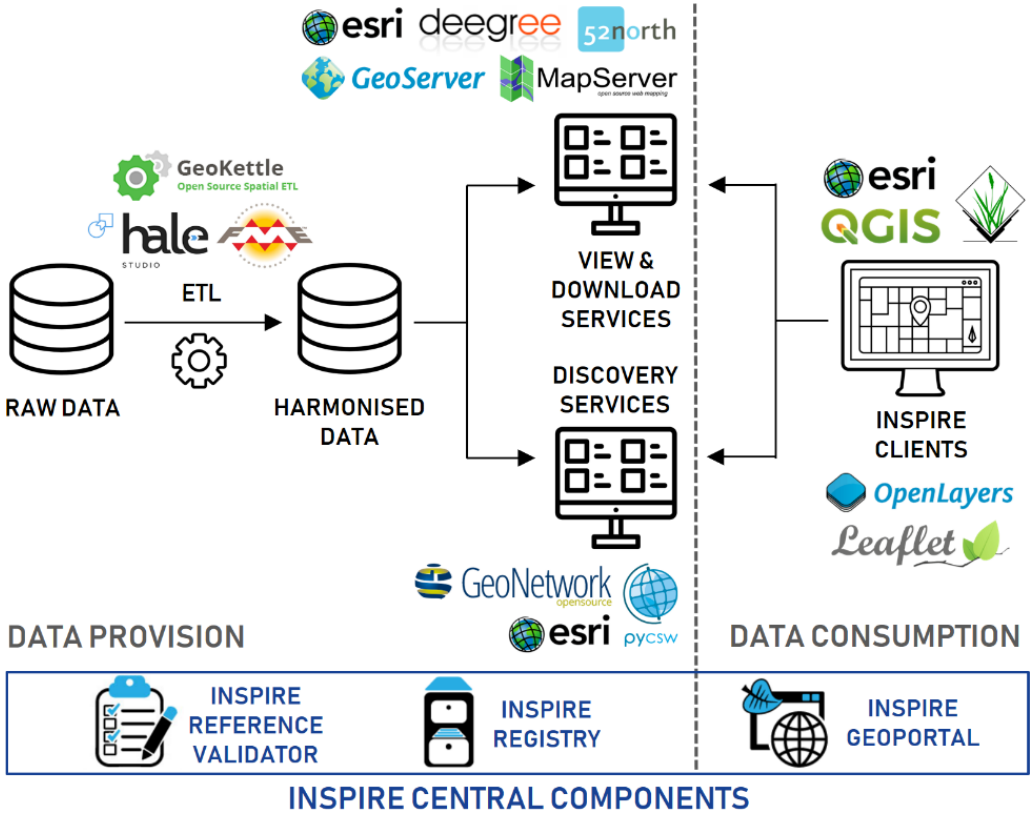


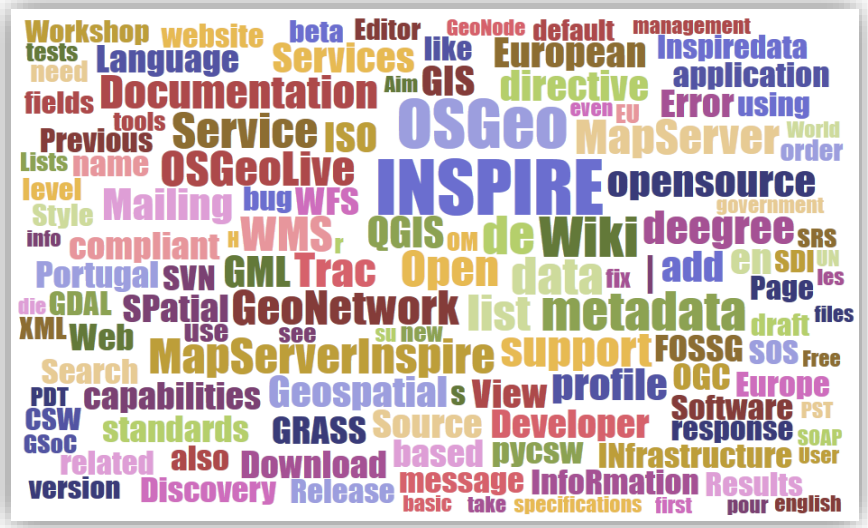


Lights - What works well
Rich ecosystem of tools

- Central INSPIRE components.
- Many client and server implementations.

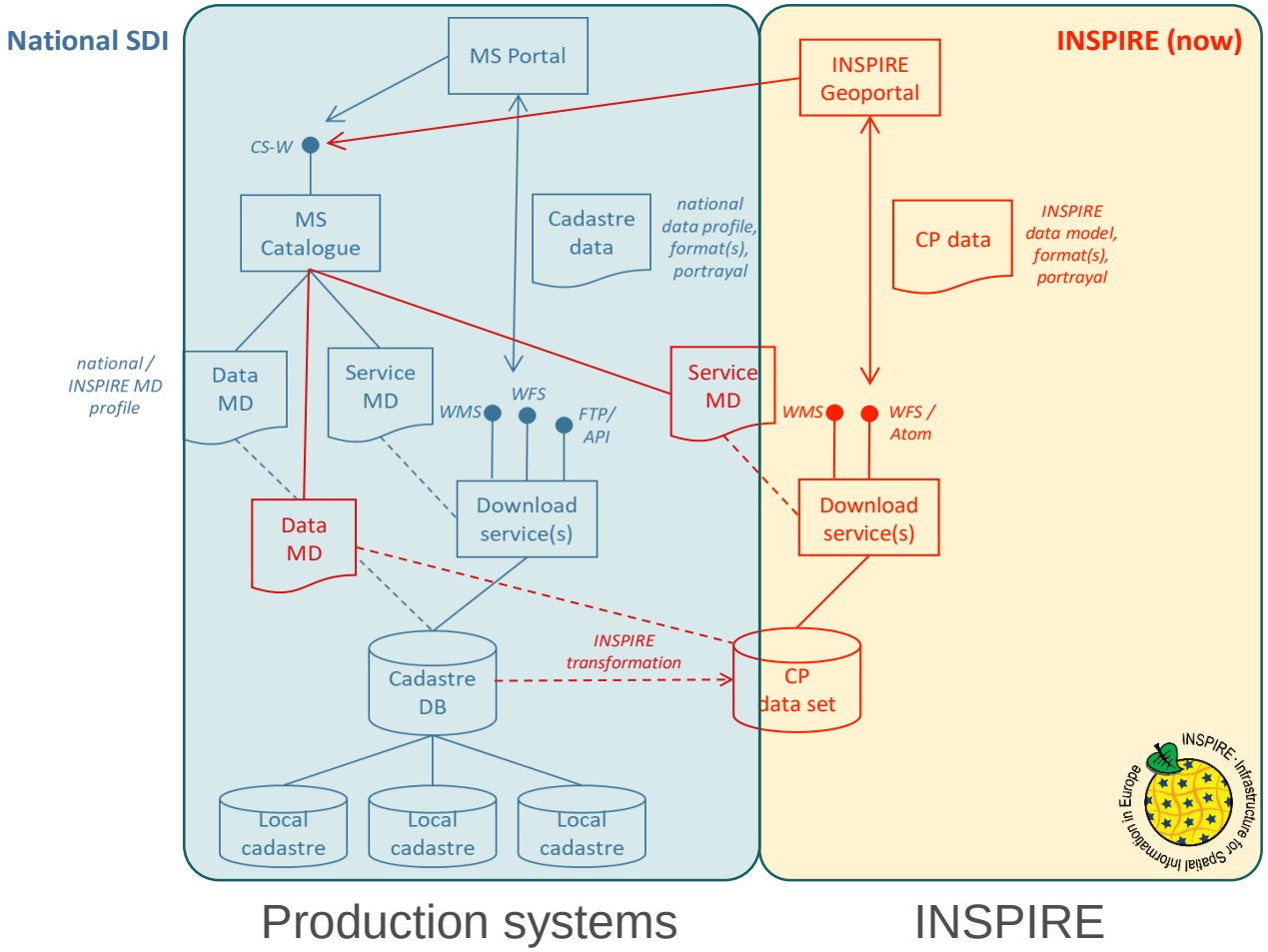






Shadows - What does not work so well
Inappropriate organisational approaches

- Parallel implementations.
- Duplication of efforts.
- INSPIRE sometimes implemented to only check a box.



Shadows - What does not work so well
Inflexibility in standardisation

- Adherence to specific technologies / encodings.
- Strictly following standards vs. Narrow use of standards.
- Custom extensions: Extending standards is problematic.
  - Extended capabilities.
  - GML attributes.
  - Nested structures.

European Commission

Shadows - What does not work so well
Complexity

```
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	<gn:beginLifespanVersion xsi:nil="true"/>
	<gn:geometry>
		<gml:Point gml:id="_d7180a8f-a590-44da-8b45-41d96d5cba5e" srsName="http://www.opengis.net/def
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	</gn:geometry>
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</gn:NamedPlace>
```

https://www.openstreetmap.org/node/1700534808#map=12/48.1332/11.6462

European Commission

What is ahead
New Policy context

- "**Europe fit for the Digital Age**" priority of the new European Commission:
  - Data-driven innovation.
  - Adding value to Europe's economy and society.
- **European Strategy for Data**:
  - Establishment of a single market for data through sector-specific data spaces.
  - Different actors interplaying in the data economy (public sector, businesses, citizens, and academia)
- **Open Data Directive** (and forthcoming Implementing Act):
  - Provision and sharing of public sector High-Value Datasets (many of them geospatial).
- **INSPIRE**: Public-sector contribution to the **Green Deal data space**.

What is ahead
Technological trends

- New data sources:
  - Internet of Things (IoT).
  - Citizen-generated geospatial data.
  - Open research data.
  - Private data.
- APIs – From data collection to data connection.
- Novel architectures.
- Agile standards.
- Mature tools.

European Commission

INSPIRE Evaluation & Future
Forthcoming JRC Science for Policy Report

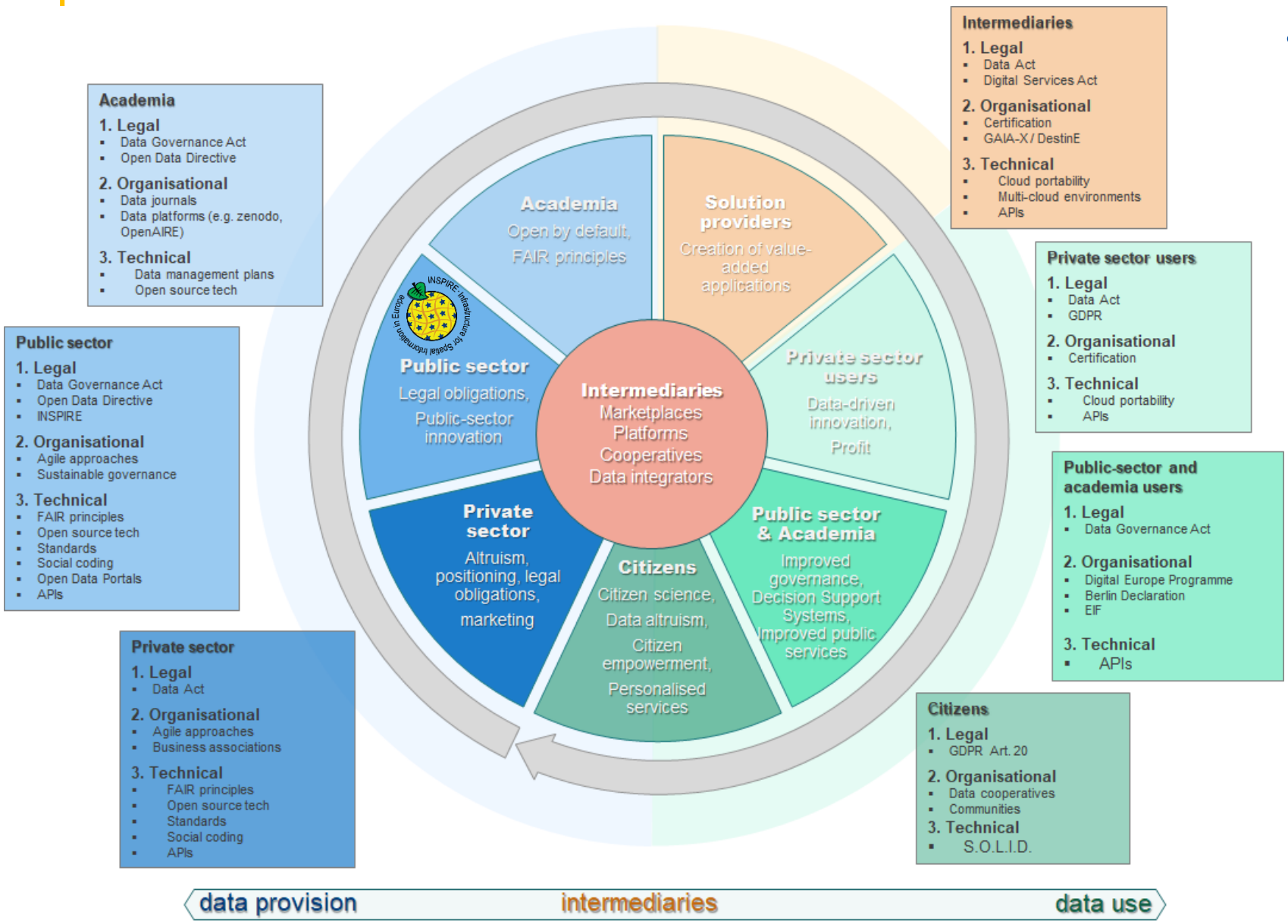
- Prepared with Geonovum and DG ENV.
- Sneak peek:
  - Overview of the status
  - Policy and technological context
  - Lessons learned
  - Vision for the technological evolution
  - Actions and roadmap
  - Prototype reference framework

INSPIRE Future
Vision (work in progress)

- INSPIRE should '**blend in' with the broader ecosystem** of spatial and non-spatial data, infrastructures, technologies and policies.
- This will mean **opening up to a broader community** of implementers and users, and to a wider range of applications and use cases.
- Making the INSPIRE framework more **flexible and agile** will significantly lower the entry level to the sharing and utilisation of data.
- Technical **approaches need to be simplified** by reusing well-adopted standards and technologies.

European Commission

INSPIRE In a broader data ecosystem



- From a linear approach to a data ecosystem:
  - Cross-sectoral.
  - Creation of value.
  - Sustainable governance model.

Addressing the challenge
Maintenance and Implementation Work programme (MIWP 2021-2024)

Context for modernising the technological framework of INSPIRE.

6 core actions

1.1 Towards a digital ecosystem for the environment and sustainability

2.1 Need-driven data prioritisation

2.2 Roadmap for priority-driven implementation

2.3 Simplification of INSPIRE implementation

2.4 Central infrastructure components

3.1 GreenData4all initiative

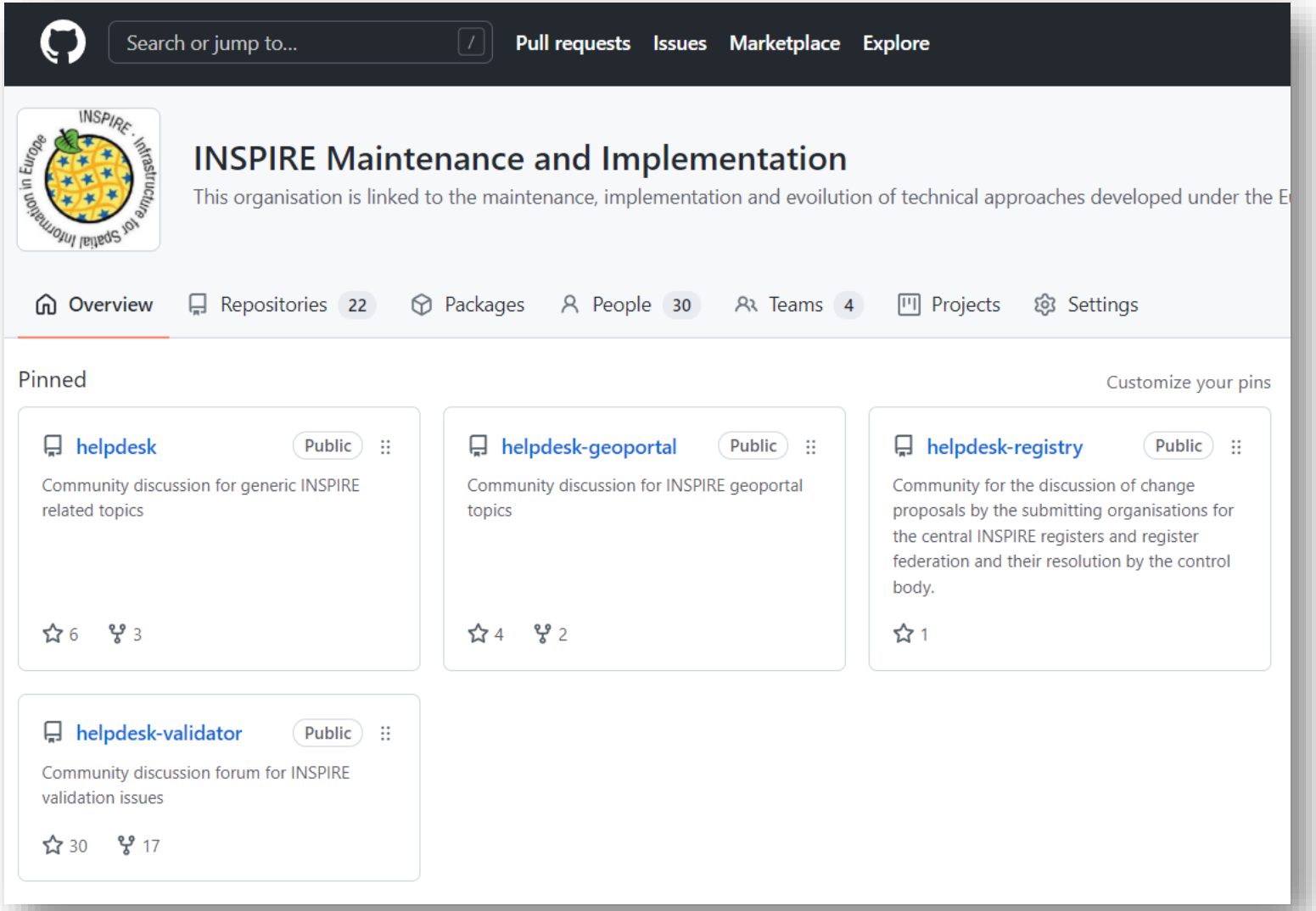
MIWP 2021-2024 Examples
‘Mainstreaming’ INSPIRE - GitHub

- **GitHub works well!**

2 Levels of support:

Level 1 – General support that includes checking, immediate answering and moving questions to the right Level 2.

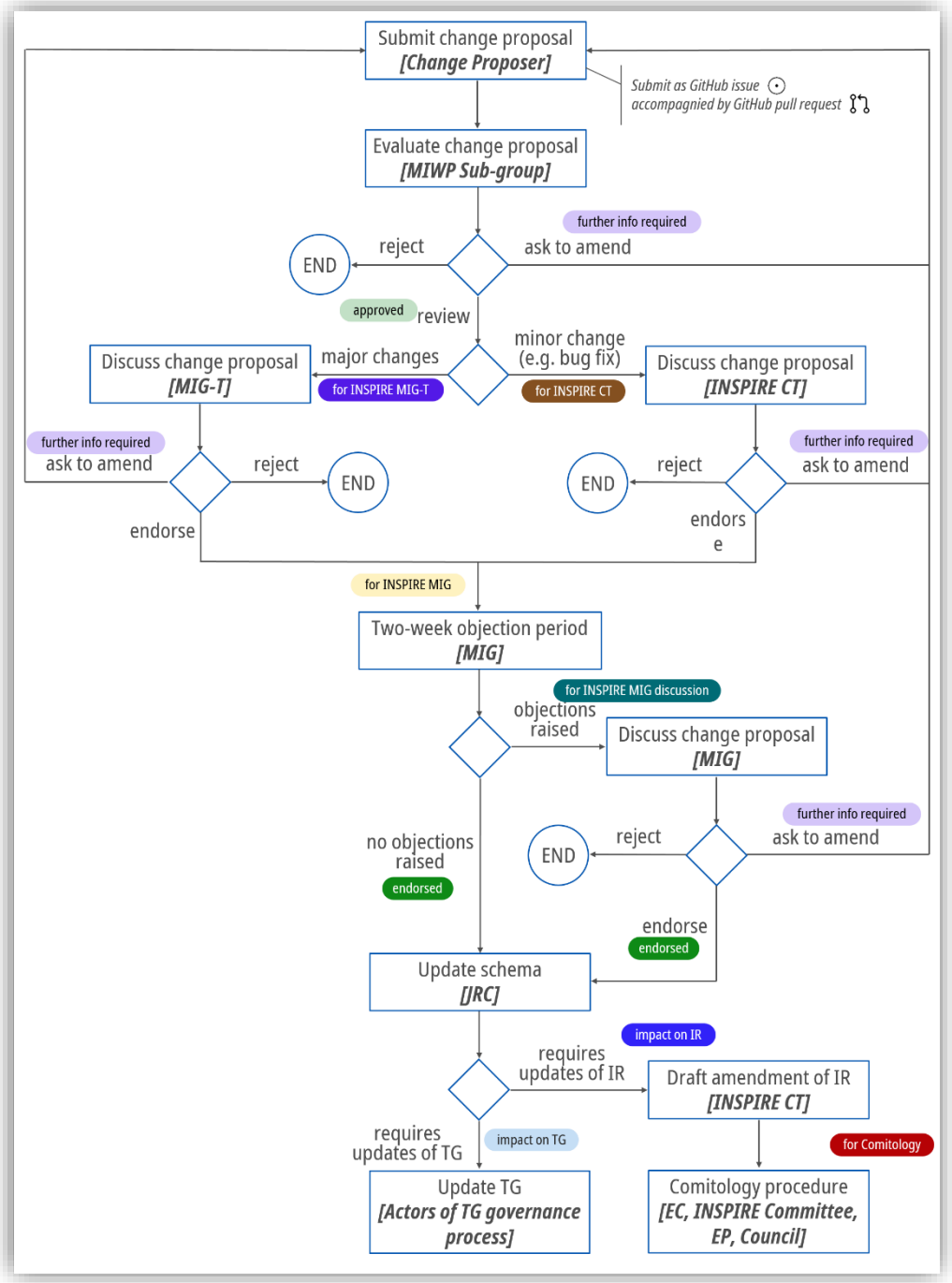
Level 2 – Provision of concrete solution.



https://github.com/INSPIRE-MIF

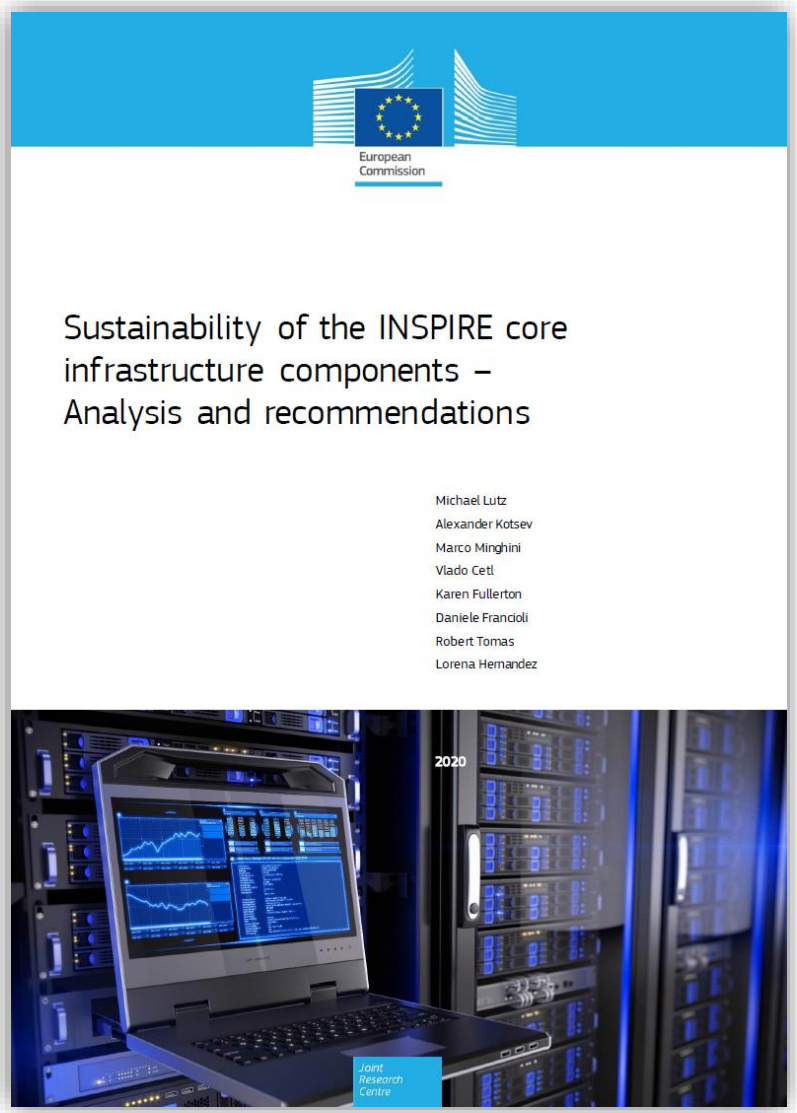
MIWP 2021-2024 Examples
Governance of artefacts

- Open the floor to proposals from the community.
- Transparent approach for governance of the artefacts:
  - Sub-group and facilitators.
  - Decision tree and release plan:
    - Know how to approach each issue.
    - 2 Releases are planned per year, aligned with the MIG-T Meetings.



MIWP 2021-2024 Examples
The Toolbox

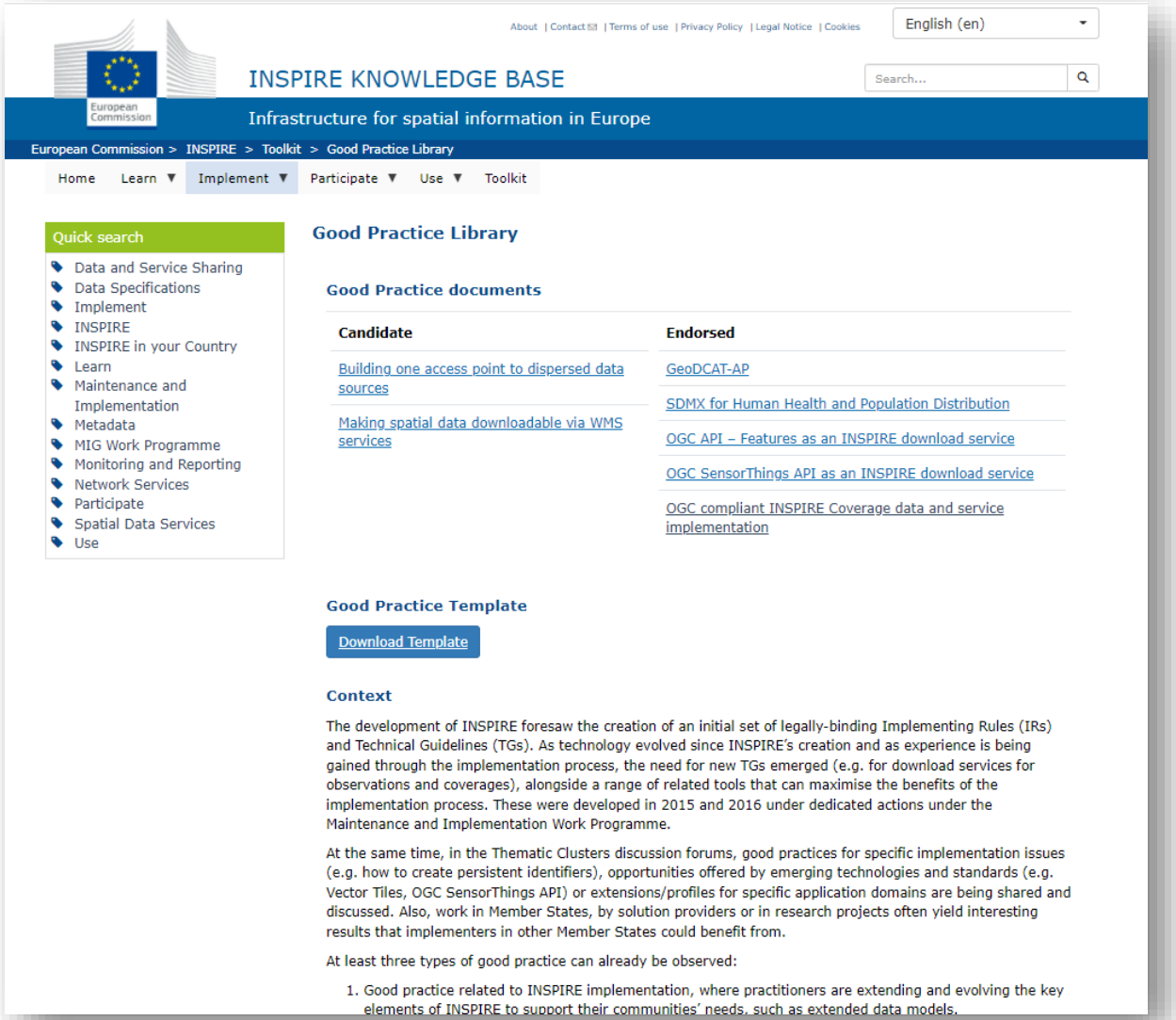
- Support by tools is the default.
- Build strategic partnerships with communities:
  - GeoNetwork as geoportal backend.
  - Registry in OSGeo.
- Focus on the INSPIRE-specificity and not on mainstream tool development.
- Harmonise the approaches for helpdesk.
- Decouple tools from infrastructure.
- Extensive use of the cloud.



MIWP 2021-2024 Examples

Modernise the technological stack of INSPIRE within the remit of legislation

- **Good practices**.
- Updated Good Practice library available.
- Procedure for endorsement:
  - *Step1. Initiation.*
  - *Step 2. Submission as good practice candidate.*
  - *Step 3. Outreach.*
  - *Step 4. Submission.*
  - *Step 5. Legal scrutiny.*
  - *Step 6. Feedback.*



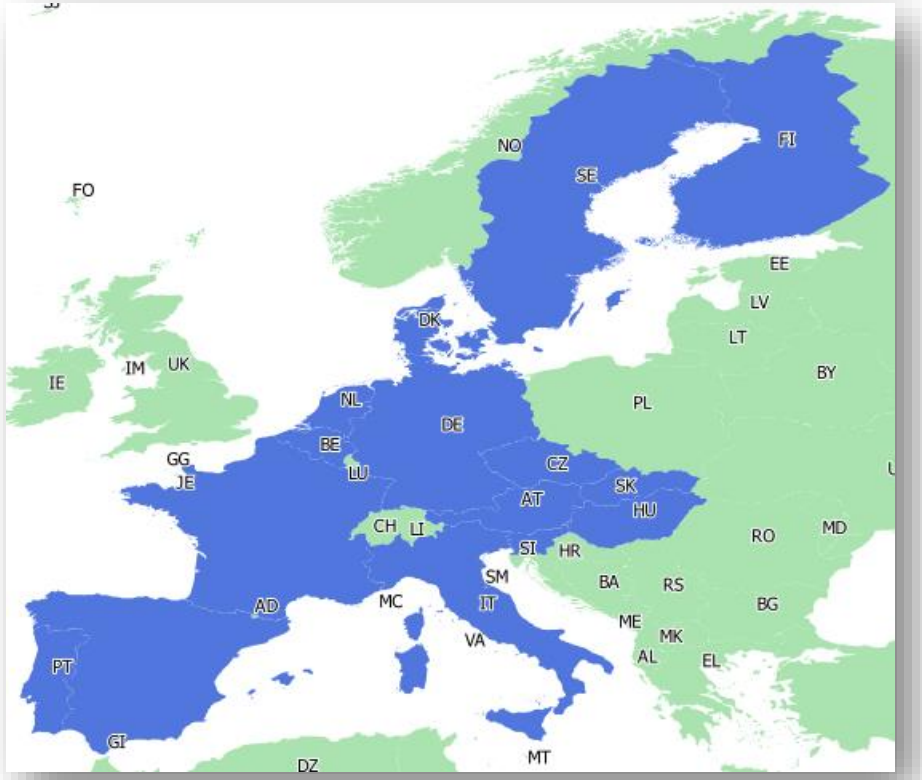
https://inspire.ec.europa.eu/portfolio/good-practice-library

MIWP 2021-2024 Examples
OGC API – Features in INSPIRE

What is the impact of OGC API – Features so far?

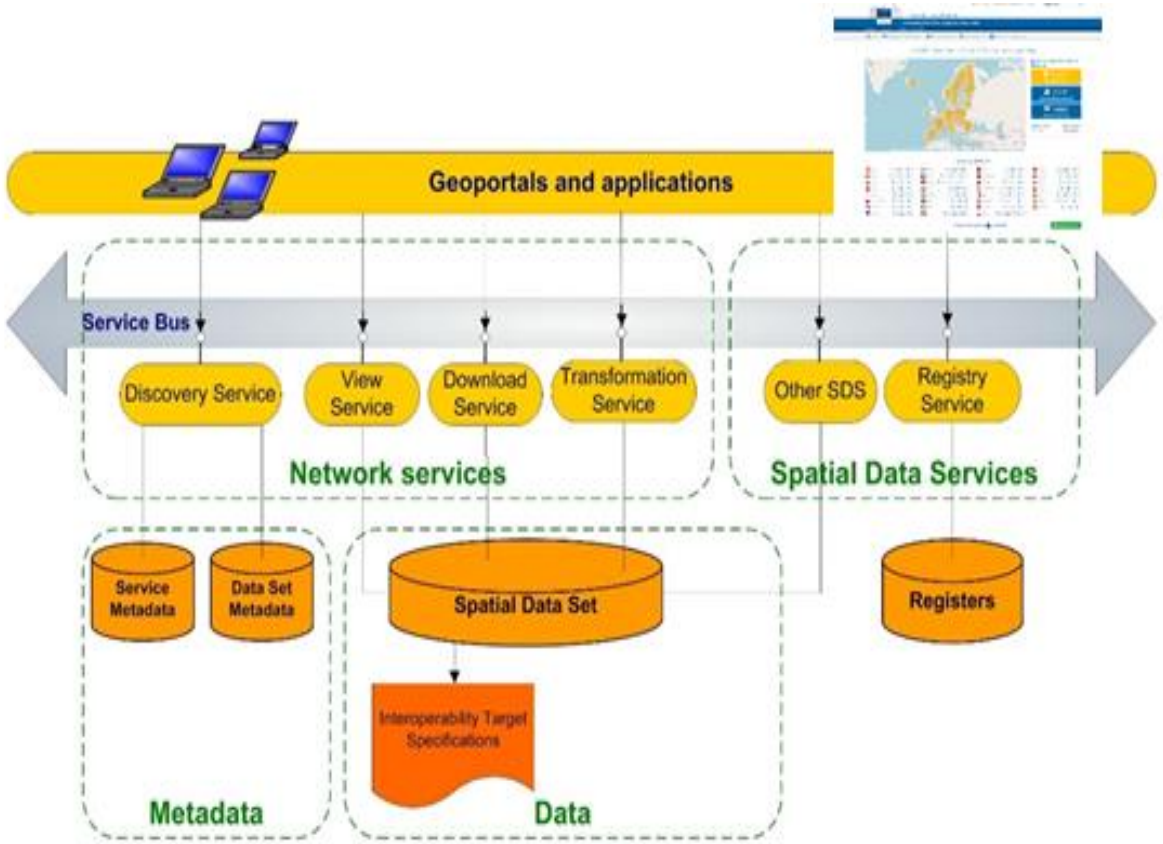
With just over a year since the release of Part 1 of OGC API - Features, the standard has already begun to have an impact globally. For example, the International Organization for Standardization (ISO) has approved Part 1 under the name ISO 19168-1:2020 Geographic information — Geospatial API for features — Part 1: Core. Further, the community of more than 30 states that are implementing the INSPIRE Directive has endorsed the API as a Good Practice for an INSPIRE download service. The INSPIRE Directive aims to create a European Union (EU) spatial data infrastructure for the purposes of EU environmental policies and policies or activities which may have an impact on the environment. Part 2 of the standard is expected to have even greater utility in geomatics due to its support for a variety of CRS. As with any OGC standard, this OGC standard is free to download and implement. Interested parties can view and download the standard from the OGC API - Features Page at https://ogcapi.ogc.org

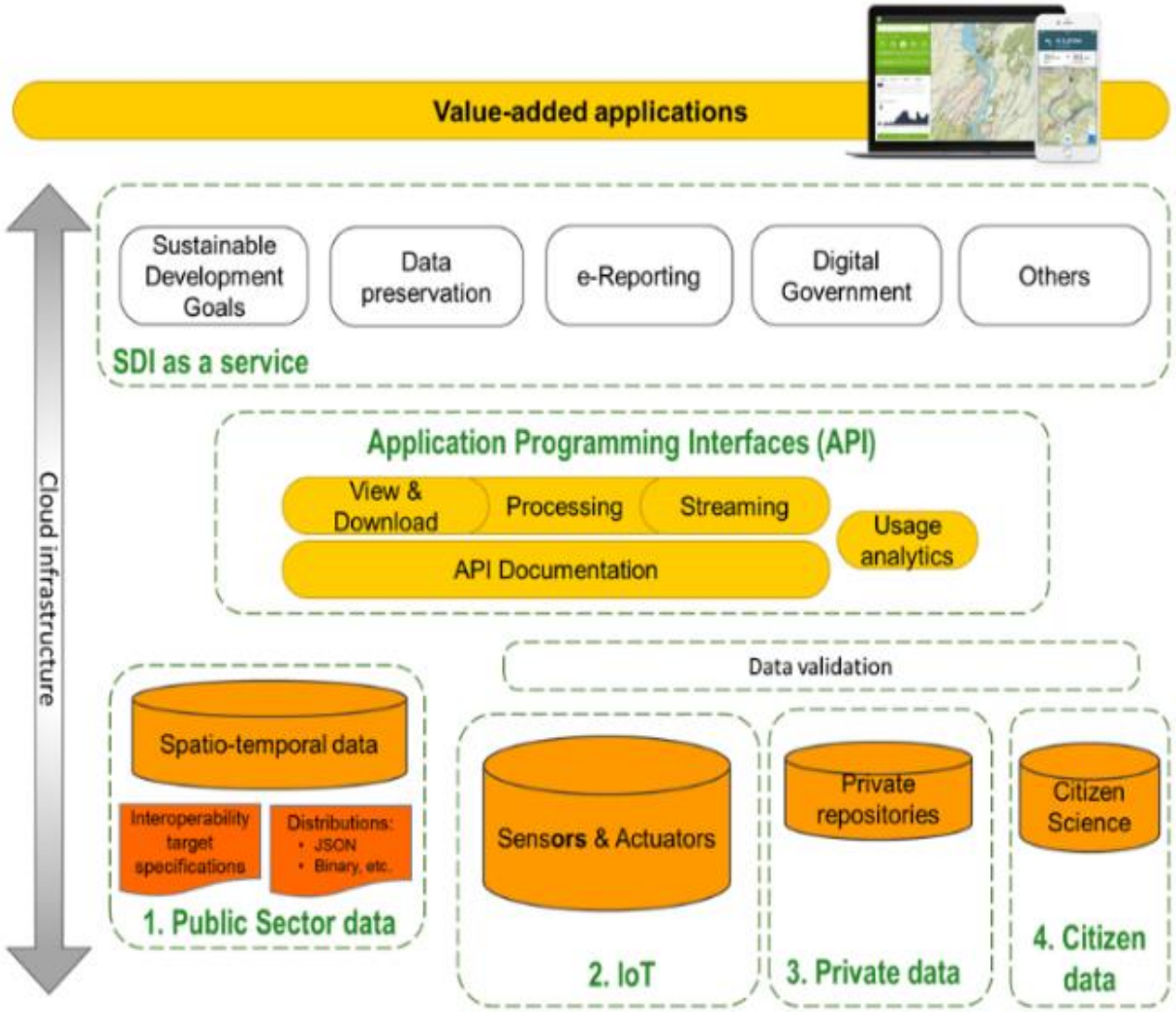
- Strong interest by Member States.
- Close collaboration between OGC, MS, EC, software vendors and projects.
- Extensive sandboxing.
- Approach confirmed through deployments.
- Validation in the ETF validator (working prototype).
- Iterative process.



MIWP 2021-2024 Examples

A new technical framework is needed…





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