



MIWP Action 1.1 - Towards a digital ecosystem for the environment and sustainability



Structure



- 1) Status of INSPIRE Good Practices
- 2) JRC Pool of experts on data-driven innovation
- 3) JRC Science for Policy report



European Commission

Good practices

INSPIRE KNOWLEDGE BASE
Infrastructure for spatial information in Europe

European Commission > INSPIRE > Toolkit > Good Practice Library

Home Learn **Implement** Participate Use Toolkit

Quick search

- Data and Service Sharing
- Data Specifications
- Implement
- INSPIRE
- INSPIRE in your Country
- Learn
- Maintenance and Implementation
- Metadata
- MIG Work Programme
- Monitoring and Reporting
- Network Services
- Participate
- Spatial Data Services
- Use

Good Practice Library

Good Practice documents

Candidate	Endorsed
Building one access point to dispersed data sources	GeoDCAT-AP
Making spatial data downloadable via WMS services	SDMX for Human Health and Population Distribution
OGC compliant INSPIRE Coverage data and service implementation	OGC API - Features as an INSPIRE download service
	OGC SensorThings API as an INSPIRE download service

Good Practice Template

[Download Template](#)

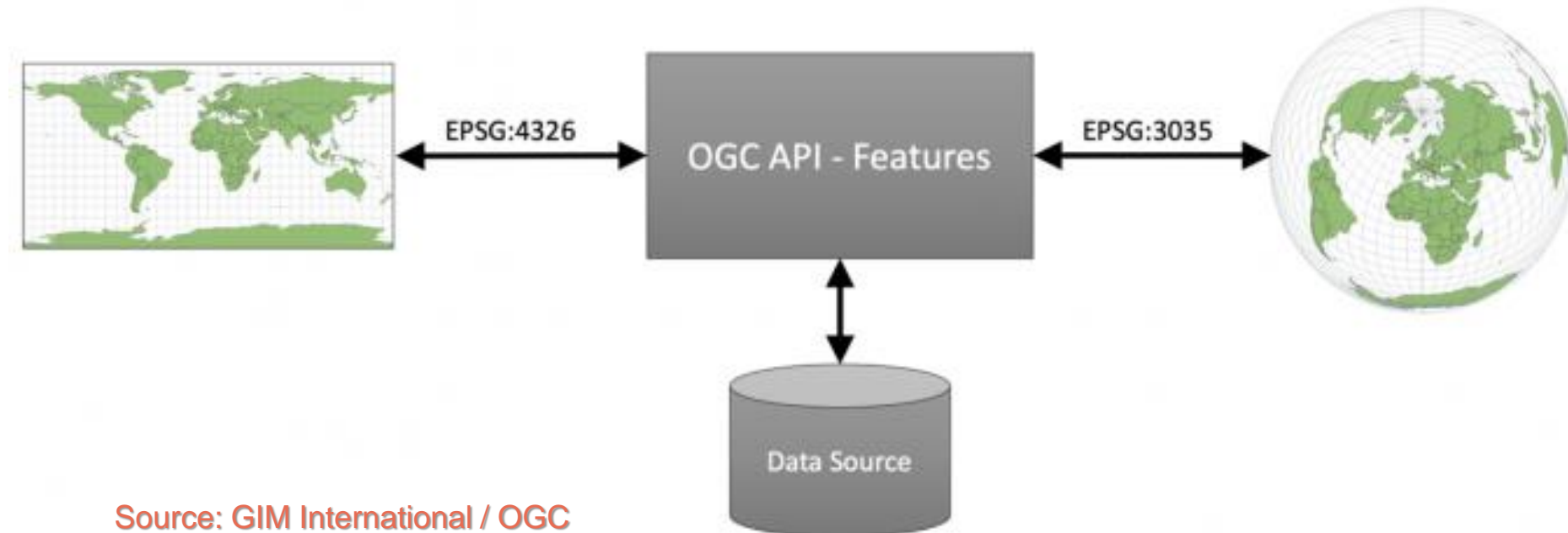
Context

The development of INSPIRE foresaw the creation of an initial set of legally-binding Implementing Rules (IRs) and Technical Guidelines (TGs). As technology evolved since INSPIRE's creation and as experience is being gained through the implementation process, the need for new TGs emerged (e.g. for download services for observations and coverages), alongside a range of related tools that can maximise the benefits of the implementation process. These were developed in 2015 and 2016 under dedicated actions under the Maintenance and Implementation Work Programme.

At the same time, in the Thematic Clusters discussion forums, good practices for specific implementation issues (e.g. how to create persistent identifiers), opportunities offered by emerging technologies and standards (e.g. Vector Tiles, OGC SensorThings API) or extensions/profiles for specific application domains are being shared and discussed. Also, work in Member States, by solution providers or in research projects often yield interesting results that implementers in other Member States could benefit from.

OGC API-Features

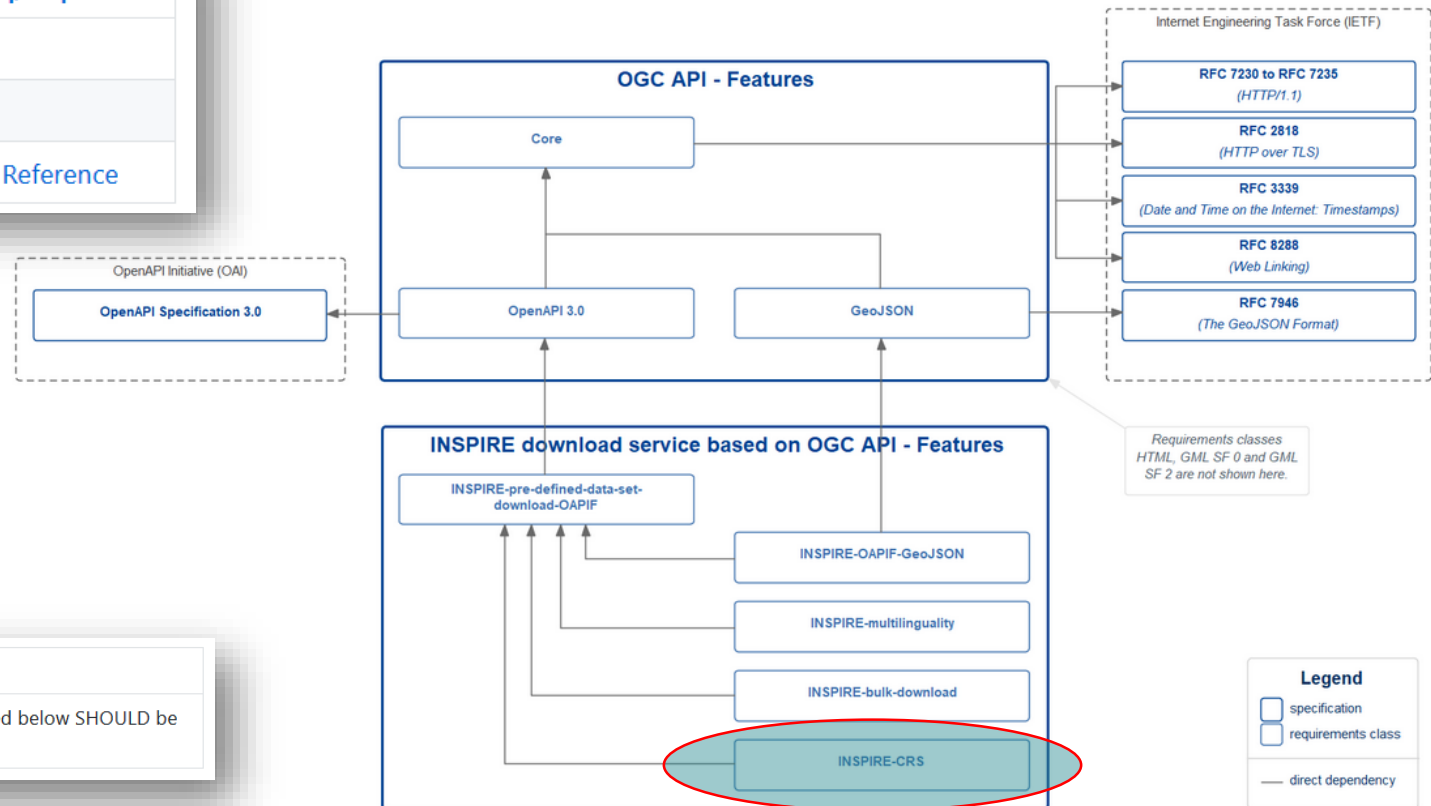
- Endorsed by the 12th MIG meeting as an INSPIRE Good Practice
- Suggested amendments by the MIG:
 - Inclusion of options for CRS different from CRS84



CRS for OGC API-Features in INSPIRE

- New requirements class: INSPIRE-CRS
- Validation in the reference validator (work in progress)

Requirements class	http://inspire.ec.europa.eu/id/spec/oapif-download/1.0/req/inspire-crs
Target type	Web API
Dependency	INSPIRE-pre-defined-data-set-download-OAPIF
Dependency	OAPIF requirements class Coordinate Reference Systems by Reference



Recommendation	/rec/inspire-crs/recognised-crs
A	For each feature collection in the API at least one of the coordinate reference systems (CRS) listed below SHOULD be included in the list of supported coordinate reference systems.

Good practices

1) INSPIRE Coverage data and service implementation

- Endorsed by the 12th MIG
- Legal scrutiny
- Validation
- Implementations

2) GeoPackage as INSPIRE data encoding

- Dedicated slot in today's agenda (17:00 - 17:30)

3) Proposed practices

- Building one access point to dispersed data sources
- Making spatial data downloadable via WMS services



Pool of experts on data-driven innovation



Pool of experts on data-driven innovation

- **Context**

- Multiple emerging technological trends can help complement and/or substitute the ways in which we are sharing information in INSPIRE
- Implemented within ELISE

- **Topics**

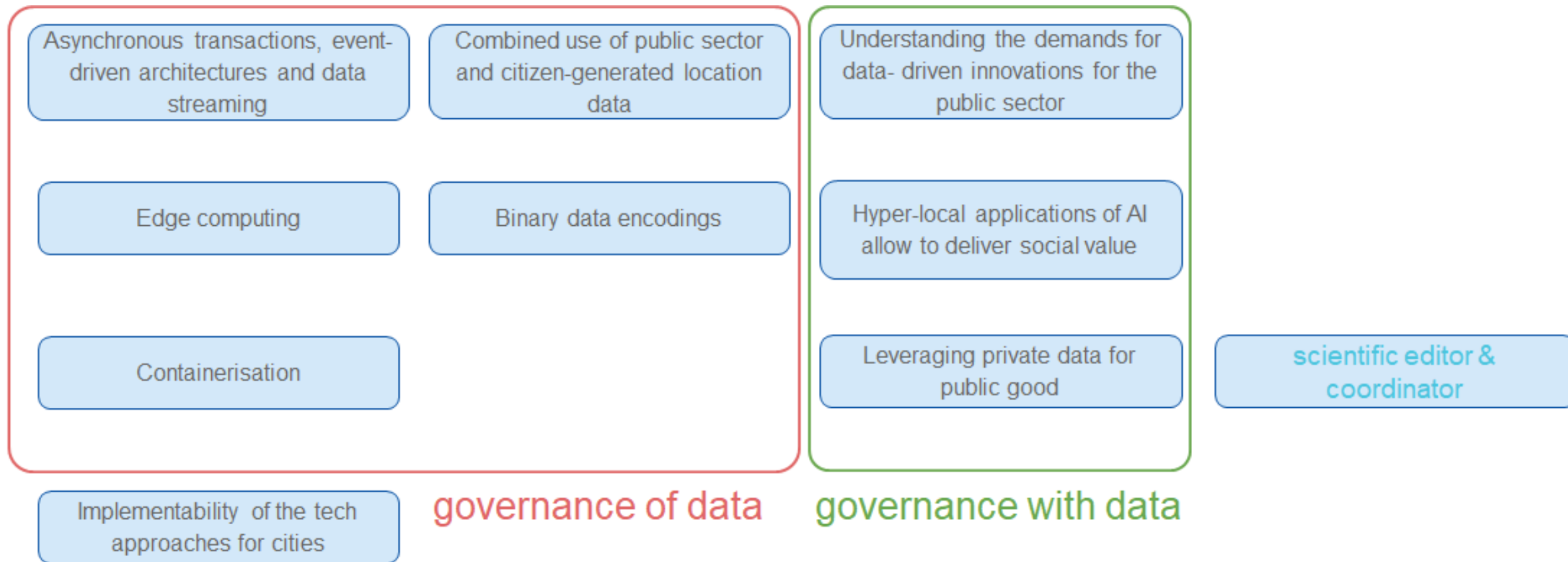
- Governance of data
- Governance with data

- **Outputs**

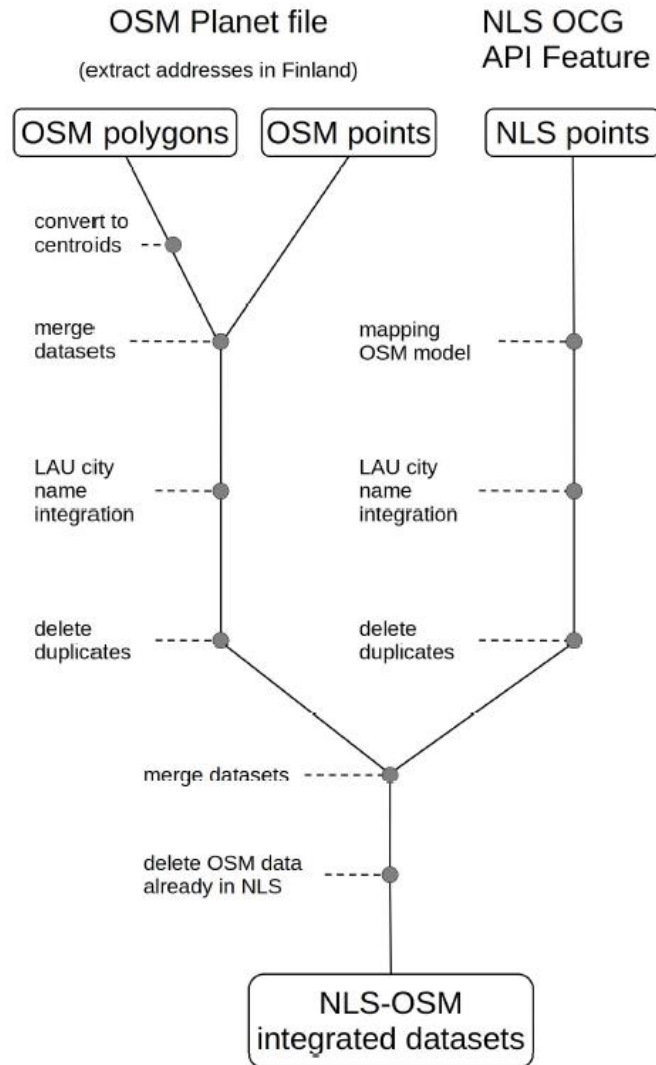
- Based on experimentation and sandboxes
- Summary of the experimentation in a structured manner (JRC Technical report)

Pool of experts on data-driven innovation

EXPERTS



Integration between authoritative and OpenStreetMap datasets



Source: Sarretta, Minghini 2021

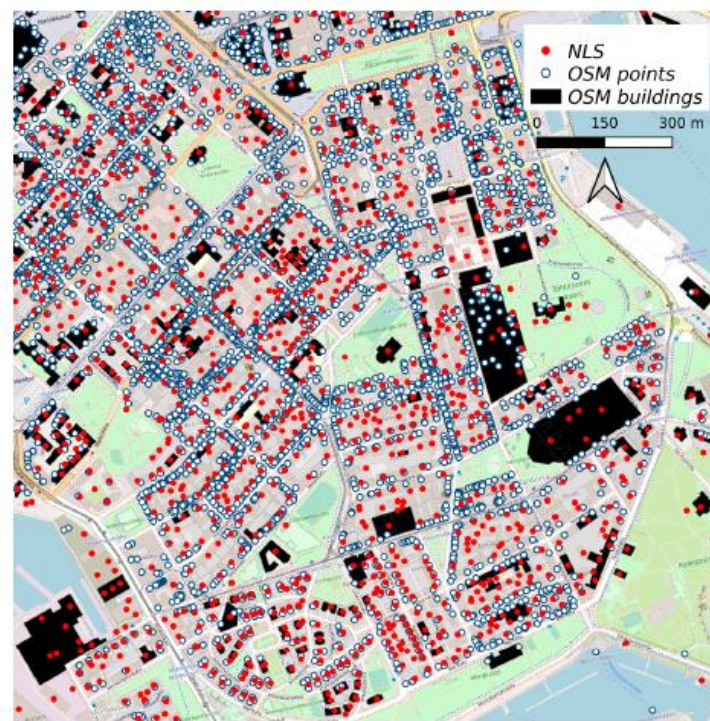
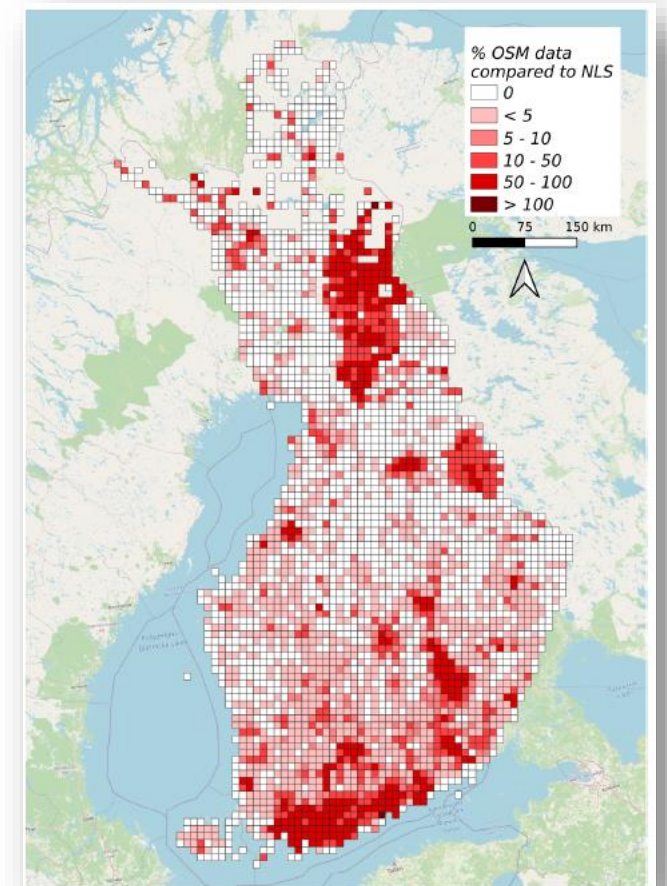


Figure 1: Example of distribution of address data in an area of Helsinki, Finland: OSM addresses associated to nodes (white points) and ways (black polygons); NLS addressed (red points). Background map: © OpenStreetMap contributors.





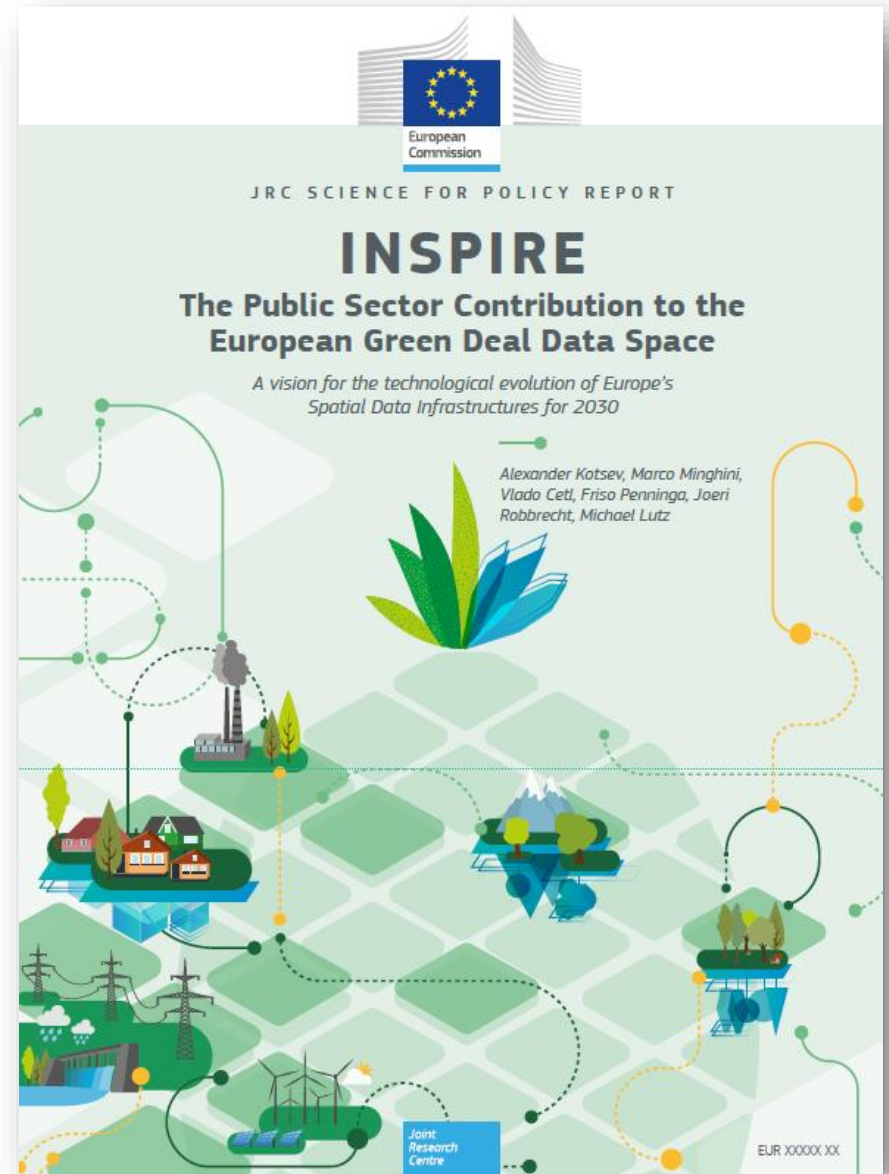
INSPIRE – The public contribution to the European Green Deal Data Space

JRC Science for Policy Report



Forthcoming JRC Science for Policy Report

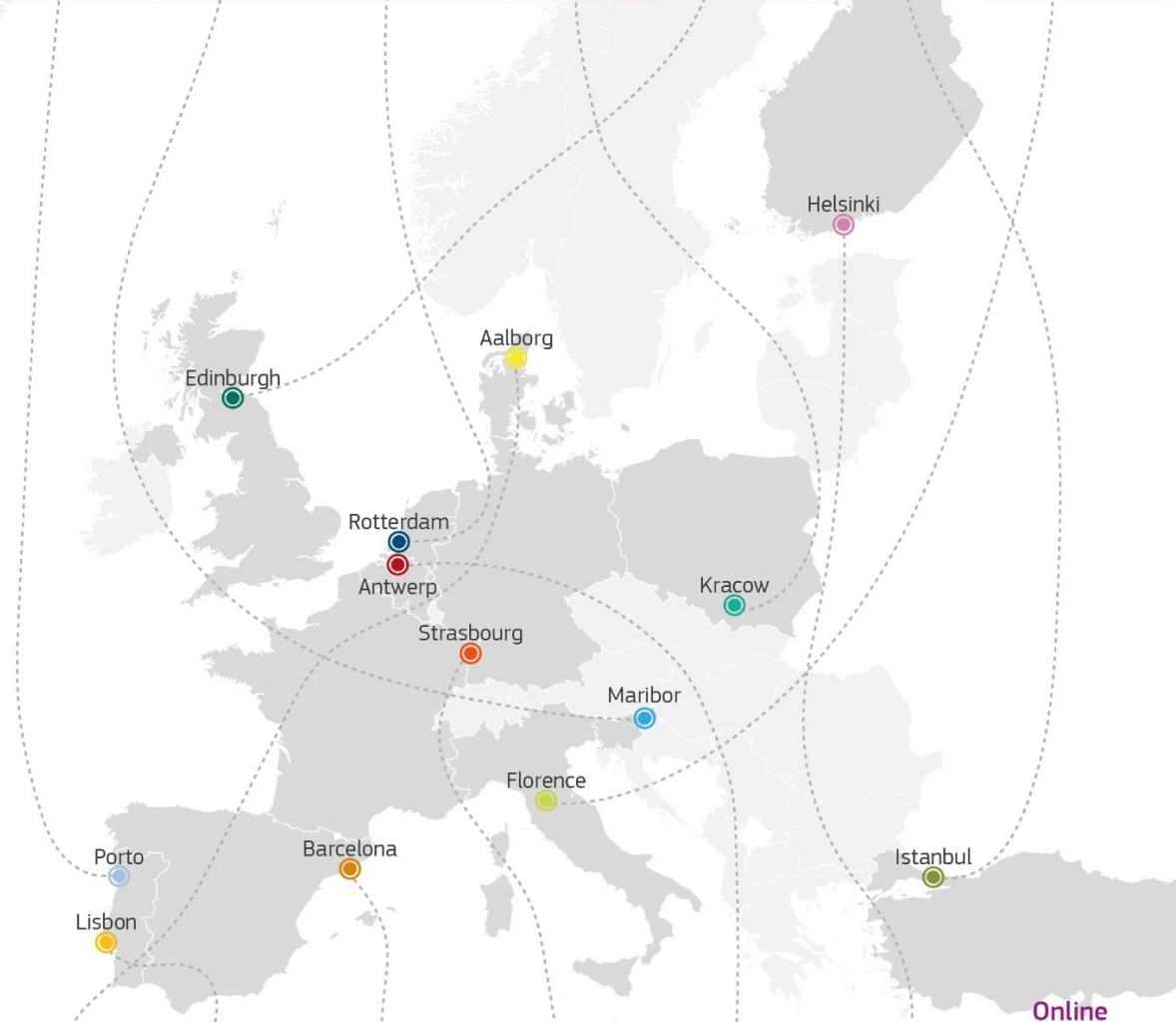
- With Geonovum and DG ENV
- Contents
 - State of play
 - Policy and technological context
 - Lessons learned from the implementation
 - Vision for the technological evolution
 - Prototype reference framework
 - Actions and roadmap



What works well Community



2007 2008 2009 2010 2011 2012 2013



2014 2015 2016 2017 2018 2019 2020 Online

Implementation and Beyond
Building SDI Bridges to Address Global Challenges
INSPIRE as a framework for cooperation
INSPIREd by 2020 Contributing to smart, sustainable and inclusive growth
Sharing environmental information, sharing innovation
The Green Renaissance

INSPIRE for good governance
INSPIRE & Geospatial World Forum
INSPIREing a sustainable environment
INSPIRE a digital Europe: Thinking out of the box
INSPIRE users: Make it work together
INSPIRE Helsinki
Bringing sustainability and digitalisation together

What works well

Data availability

- Discoverability and accessibility are improving

The screenshot shows the INSPIRE Geoportals website. At the top, there is a navigation bar with the European Commission logo and the text "INSPIRE GEOPORTAL Enhancing access to European spatial data". Below this is a secondary navigation bar with links for Home, Priority Data Sets Viewer, Thematic Viewer, Harvesting status, and Find out more about. The main content area features a map of Europe titled "INSPIRE Data Sets - EU & EFTA Country overview". To the right of the map is a sidebar titled "INSPIRE Geoportals Data Set Statistics" with three main statistics: 144241 Metadata records, 42781 Downloadable Data Sets, and 43716 Viewable Data Sets. Below the statistics is a section for "Spatial scope" with radio buttons for National and Regional coverage. At the bottom of the page, there is a "Select a COUNTRY" section with a grid of country flags and their respective data set counts. A "Download stats" button is located at the bottom right of the statistics section.

Country	Metadata records	Downloadable Data Sets	Viewable Data Sets
Austria	623	400	483
Belgium	639	572	566
Bulgaria	263	97	99
Croatia	144	6	17
Cyprus	42	32	34
Czech Republic	157	58	101
Denmark	185	80	81
Estonia	86	36	50
Finland	59	121	236
France	38963	2040	1756
Germany	58504	36997	37664
Greece	59	59	59
Hungary	121	23	20
Iceland	147	7	0
Ireland	76	0	0
Italy	19144	401	625
Latvia	161	93	94
Liechtenstein	59	9	11
Lithuania	117	110	44
Luxembourg	304	283	243
Malta	150	133	149
Netherlands	206	108	119
Norway	161	66	27
Poland	158	105	72
Portugal	625	390	482
Romania	103	35	38
Slovakia	286	73	75
Slovenia	94	14	37
Spain	246	168	64
Sweden	253	210	217
Switzerland	204	2	4

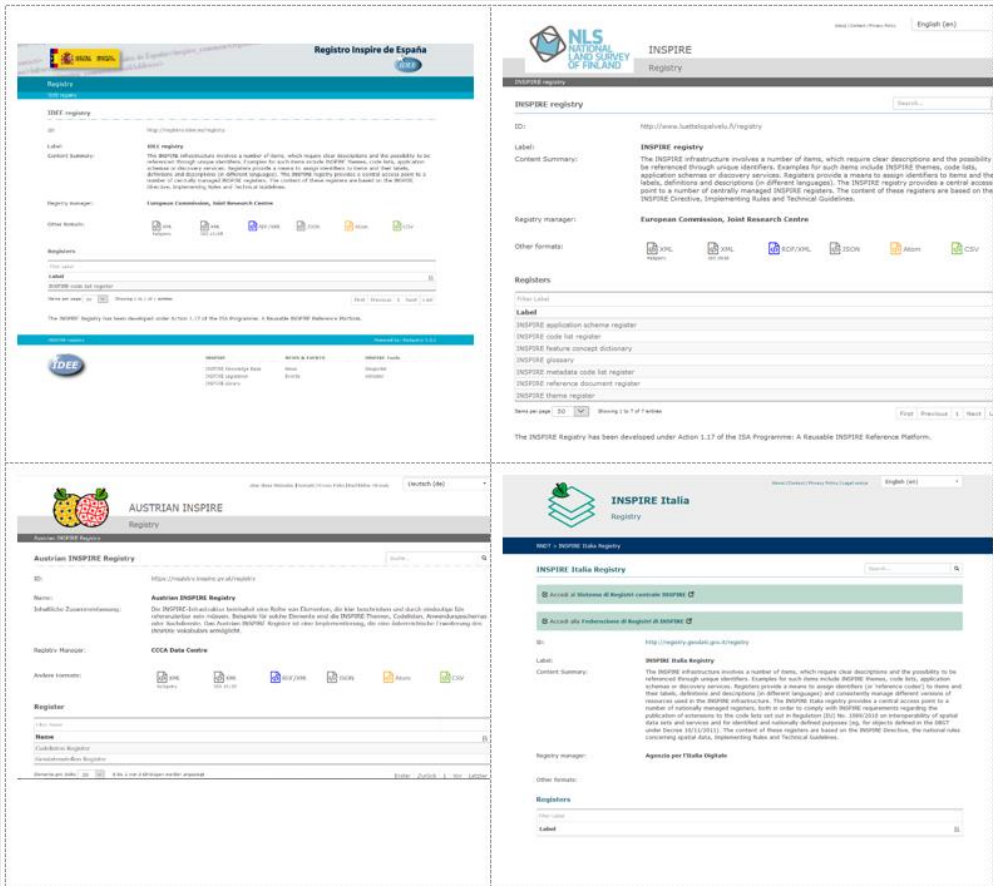
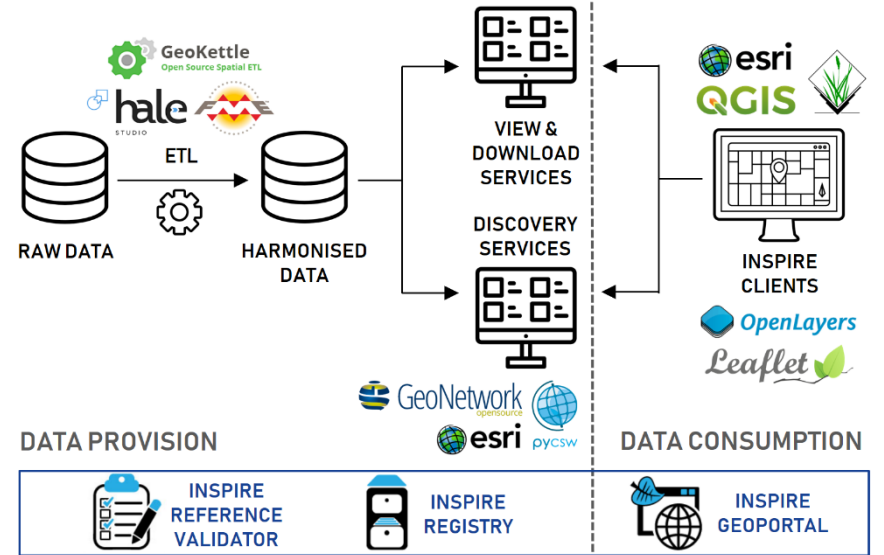


The screenshot shows the European Data Portal website. At the top, there is a navigation bar with the European Data Portal logo and the text "EUROPEAN DATA PORTAL". Below this is a secondary navigation bar with links for Data, Impact & Studies, Training, News & Events, and About. The main content area features a search bar with the text "inspire" and a search button. Below the search bar is a map of Europe. To the right of the map is a sidebar titled "INSPIRE WMS View Service for the theme Geographical Names (GN)". The sidebar contains a table of search results with columns for Country, Number of Datasets, and Date Updated. A "Download stats" button is located at the bottom right of the sidebar.

Country	Number of Datasets	Date Updated
Czechia	38836	Created
Germany	18130	Created
France	18070	Updated
United Kingdom	4553	Updated
Belgium	2212	Updated
Spain	1079	Updated
Austria	546	Created
Netherlands	441	Updated
Poland	437	Updated

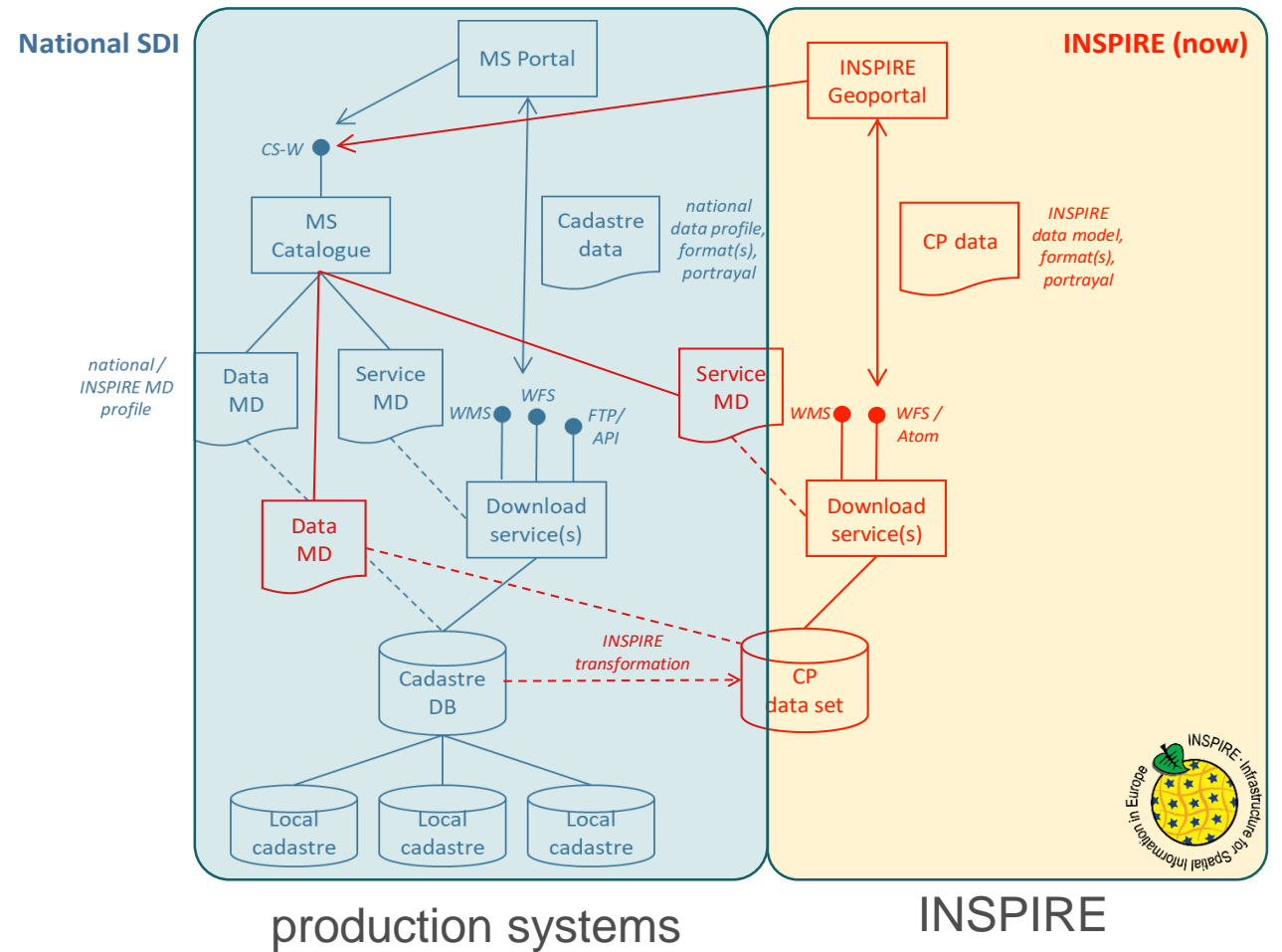
What works well

- Rich ecosystem of tools
 - Central INSPIRE components
 - Many client and server implementations



What does not work so well

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



What does not work so well

- Custom extensions and narrow use of standards
 - Strictly following standards, or extending standards is problematic
 - Extended capabilities
 - GML attributes
 - Nested structures

What does not work so well

- Complex encoding

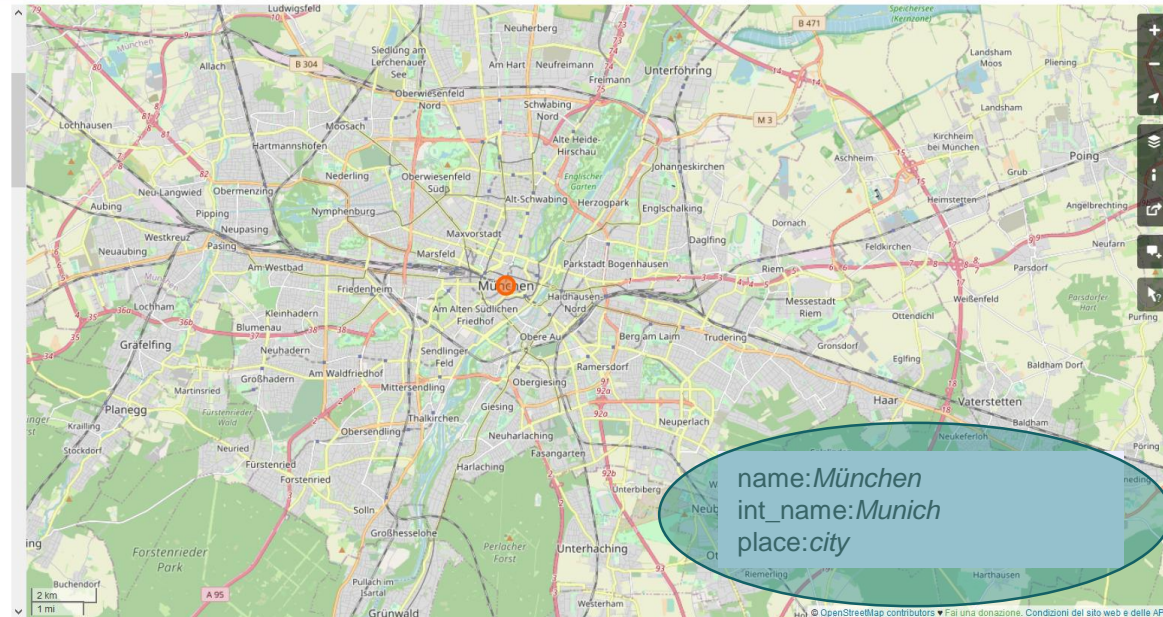
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<gn:NamedPlace gml:id="MIG20172_example_NamedPlace">
  <gn:beginLifespanVersion xsi:nil="true"/>
  <gn:geometry>
    <gml:Point gml:id="d_7180a8f-a590-44da-8b45-41d96d5c5a5e" srsName="http://www.opengis.net/def
    <gml:pos>471979.2568 5564594.2444</gml:pos>
    </gml:Point>
  </gn:geometry>
  <gn:inspireId>
    <base:Identifier>
      <base:localId>NamedPlace_Example</base:localId>
      <base:namespace>https://www.examples.eu/</base:namespace>
    </base:Identifier>
  </gn:inspireId>
  <gn:localType xsi:nil="true"/>
  <gn:name>
    <gn:GeographicalName>
      <gn:language>deu</gn:language>
      <gn:nativeness xsi:nil="true"/>
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      </gn:spelling>
    </gn:GeographicalName>
  </gn:name>
  <gn:type xsi:nil="true"/>
</gn:NamedPlace>
```

OpenStreetMap Modifica Cronologia Esporta

Tracciati GPS Diari degli utenti Copyright Auto Informazioni mingo23

Etichette

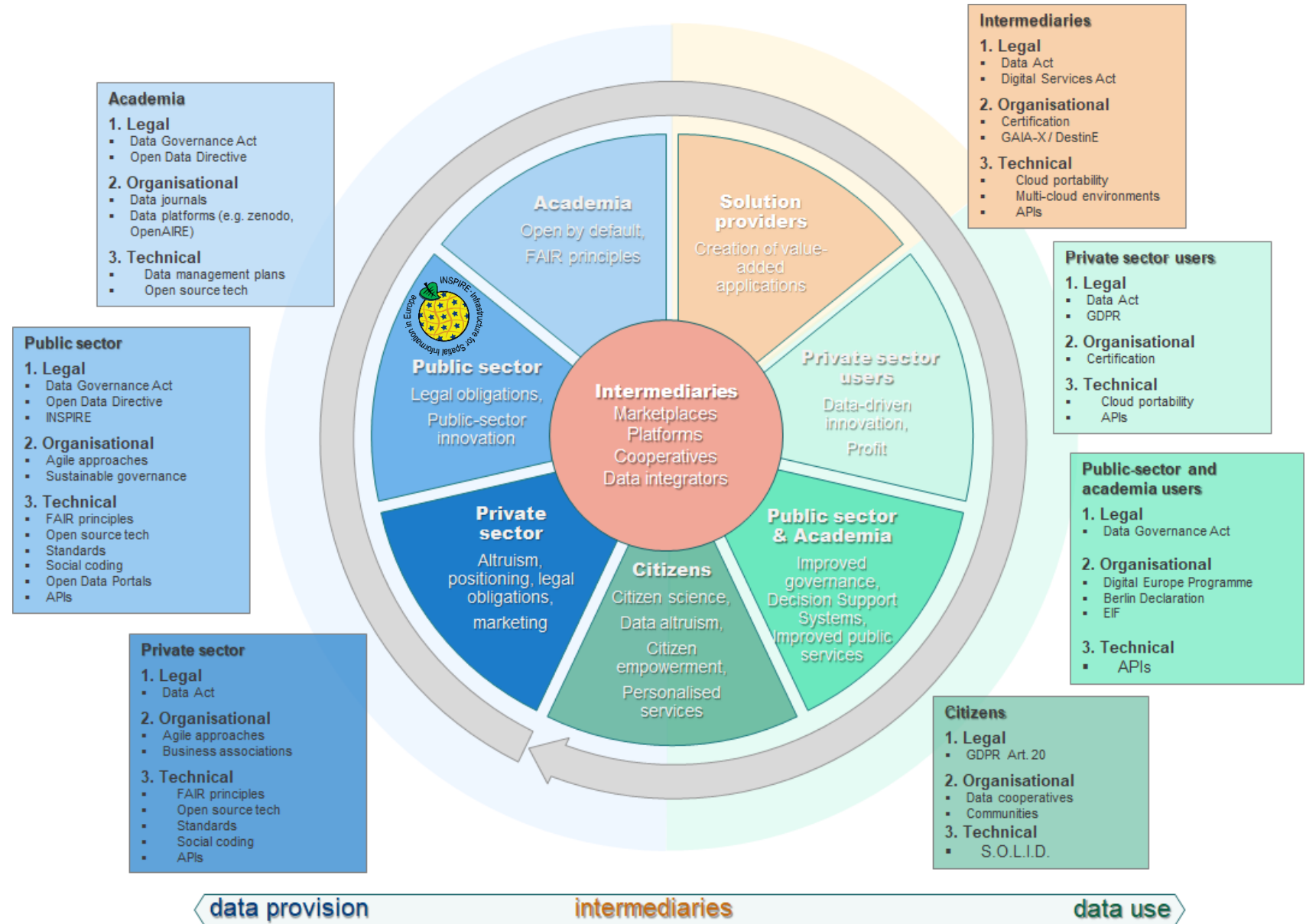
alt_name:ia	Monachium,Monachum
capital	4
ele	519
int_name	Munich
is_in_country_code	DE
is_iso_3166_2	DE-BY
name	München
name:als	Münche
name:ar	ميونخ
name:az	Münhen
name:bar	Minga
name:be	Мюнхен
name:be-larak	Мюнхэн
name:bg	Мюнхен
name:ca	Munic
name:cs	Mnichov
name:da	München
name:de	München



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

INSPIRE in a broader data ecosystem

- From linear approach to a data ecosystem
- Follow the value creation
- Sustainable governance model is needed



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.

Thank you



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