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Common Frameworks for Geospatial Data:
The EU Approach *

Common Frameworks for Geospatial Data: The EU Approach

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Summary

- Why an EU common framework
- What is INSPIRE
  - Legal aspects
  - Scope
  - Governance and collaboration
- Where are we now
- Is INSPIRE useful for GGIM?

Why an European common framework?

Situation in Europe

- **<u>Data is difficult to find:</u>**
  - fragmentation of data sets and sources
  - and related gaps and duplications
- **<u>Data is difficult to get:</u>**
  - policy restrictions: pricing, copyright, access rights, licensing policy
  - lack of infrastructure
- **<u>Data is difficult to use:</u>**
  - lack of standards: incompatible information and information systems
- **<u>Lack of co-ordination</u>**
 - across boarders and between levels of government
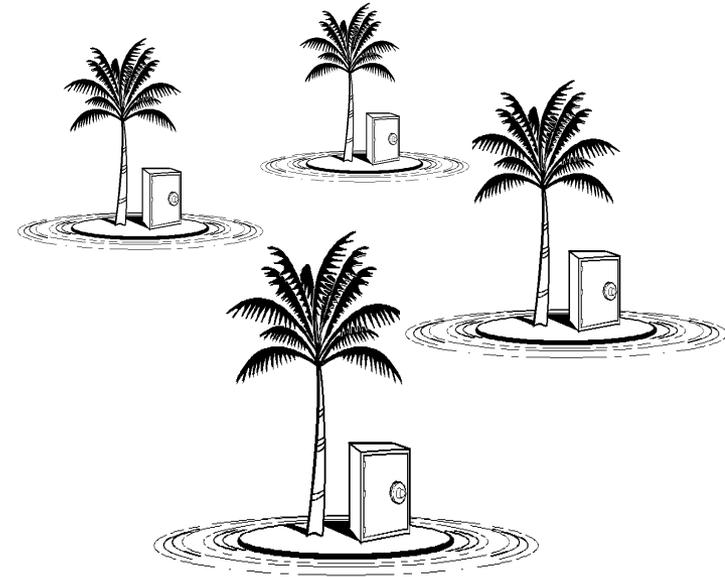
**European Union has islands of data of different standards and quality...**

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Why Europe needs interoperability and harmonisation?

Environmental and other kinds of phenomena do not stop at national borders

- 20% of the EU citizens (115 million) live within 50 Km from a border.
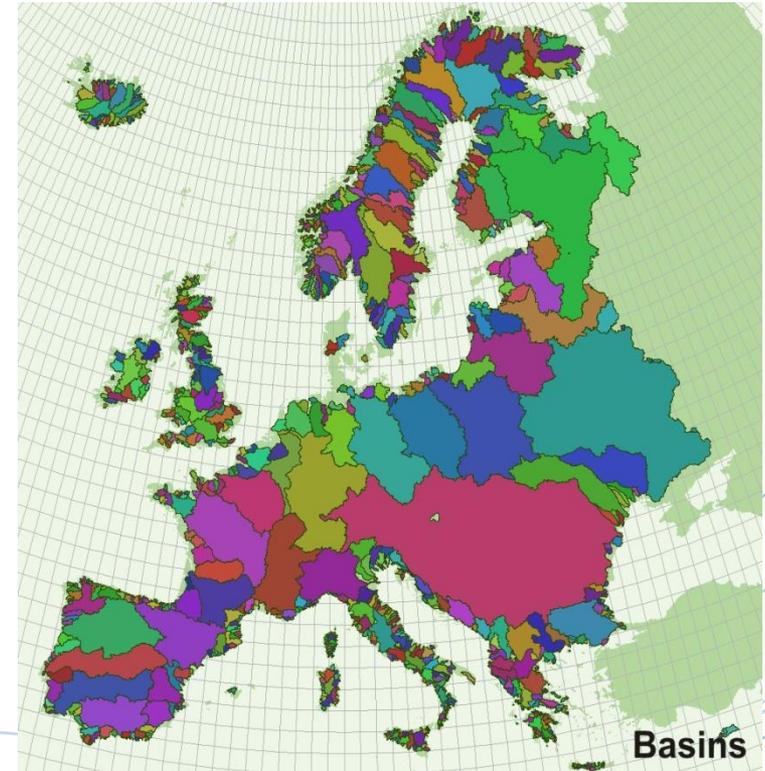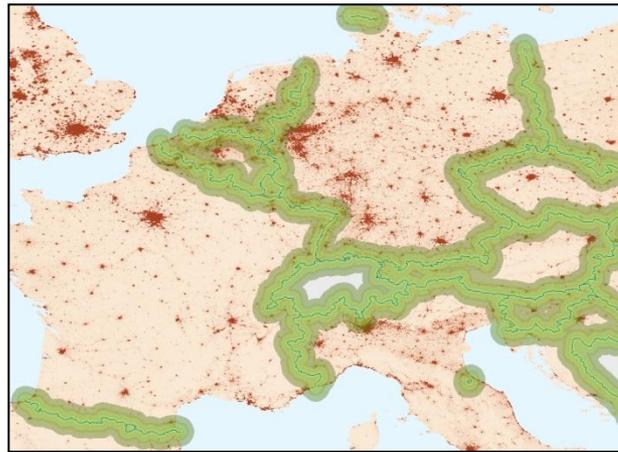
Basins

70% of all fresh water bodies in Europe are part of a trans-boundary river basin !!

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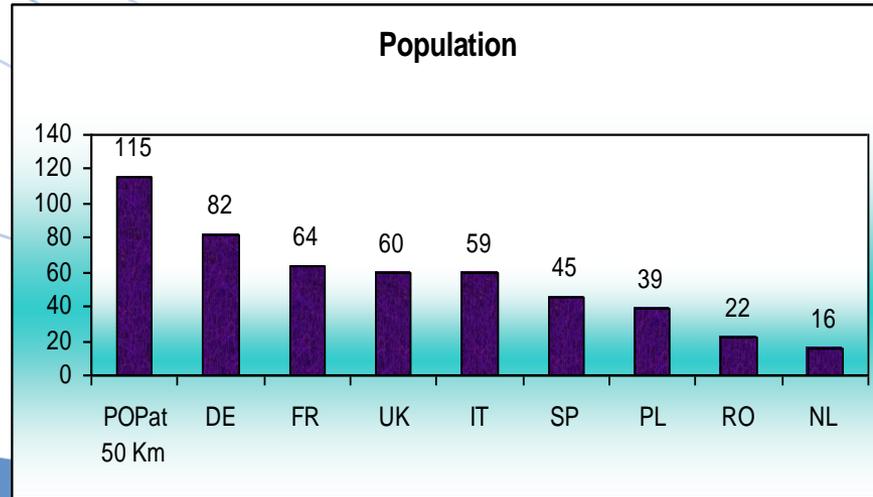
Rationale for a common framework

- Why:
  - Exponential growth of geospatial information
  - Important investments made by public/private actors
  - Usable in contexts different from initial purpose
  - User needs diverse and increasing
- Common framework allowing:
  - Knowing what exists (discovery services)
  - Displaying the data and merging datasets (viewing)
  - Transferring to own environment (downloading)
- This is INSPIRE

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INSPIRE. A European Spatial Data Infrastructure
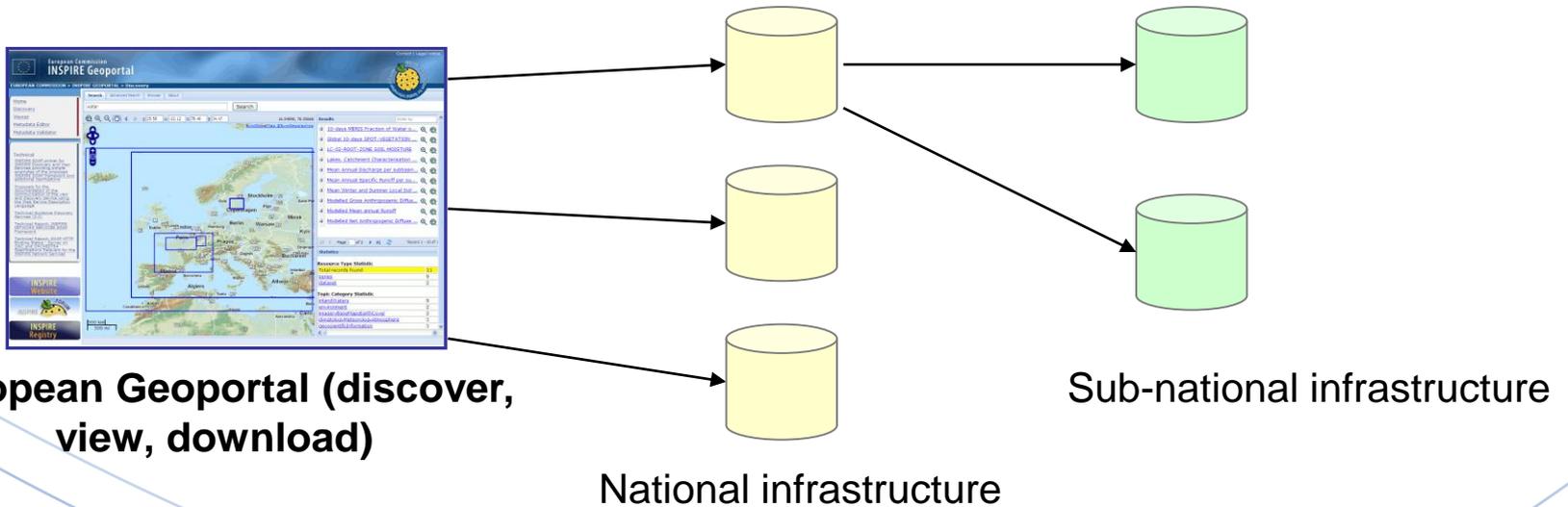
European Geoportal (discover, view, download)

National infrastructure

Sub-national infrastructure

Components

Institutional framework	Technical standards
Fundamental data sets	Information Services

Metadata
Data
Services

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1. The Legal Act

■ <u>EU Directive (2007/02/EC):</u> general rules to establish an European Infrastructure for Spatial Information for environmental policies

■ <u>The infrastructure will build upon Member States infrastructures</u> for spatial information.

■ <u>Which data sets?</u>
 – existing spatial data sets
 – held by or on behalf of a public authority
 – fall under the list of spatial data themes in Annex I – III of the Directive.
 – **Beyond environment**

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

Annex II
- Elevation
- Land cover
- Orthoimagery
- Geology

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

→ <u>Implementing rules:</u>
Technical arrangements and detailed provisions must be defined in implementing rules (Commission Decisions and Regulations)

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2. The scope. Beyond Environment

■ The implementation of INSPIRE needs to consider the broader context of existing initiatives which could contribute to the European Spatial Data Infrastructure
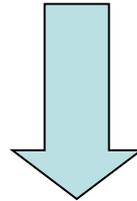
■ The INSPIRE Work Programme should interface with those partnerships and initiatives where relevant and establish synergy

e.g. GEOSS, GMES, GALILEO, GSDI,...
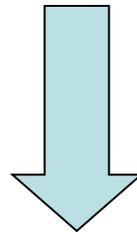
concept of Spatial Data Interest Communities (SDIC) and Legally Mandated Organisations (LMO)

■ SDIC bundle the human expertise of users, producers and transformers of spatial information, technical competence, financial resources and policies. Many SDIC exist today, generally organised by region, thematic issue or sector (industry).

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2. Governance and consultation structures

■ **The Commission (DG ENV, Eurostat, Joint Research Centre)**
  – Shall be assisted by a Committee -> Comitology Procedure
  – Coordinating INSPIRE at Community level assisted by relevant organisations and, in particular, by the European Environment Agency

■ **The Member States**
  – Are members of the Committee
  – Contact points to the Commission supported by a coordination structure, taking account of the distribution of powers and responsibilities within the Member State.

■ **Other Parties**
  – European standardisation bodies
  – Representatives of Member States at national, regional and local level as well as other natural or legal persons, including users, producers, added value service providers or any coordinating body

■ **The European Parliament and Council**

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The development cycle of INSPIRE Implementing Rules
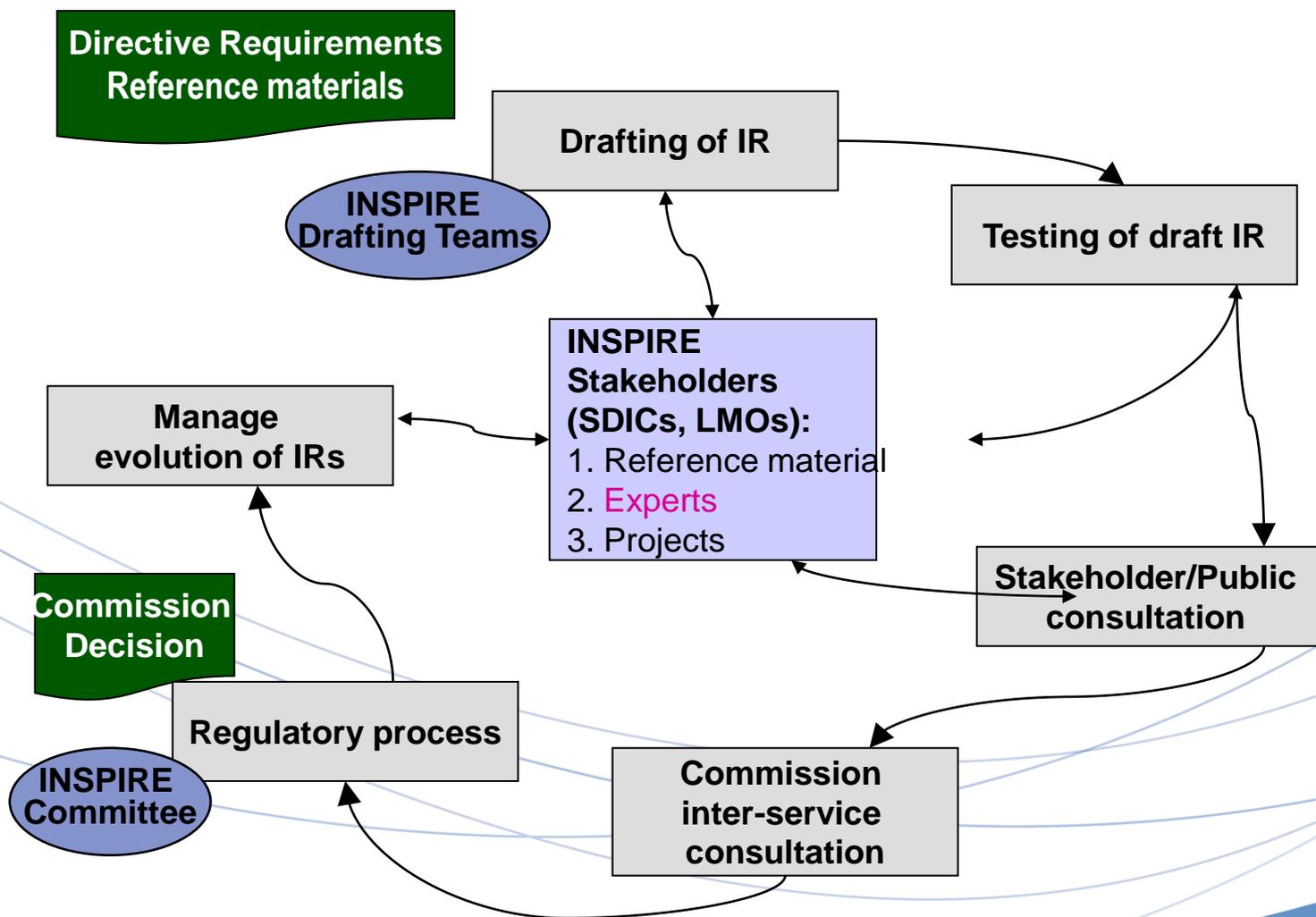
Where we are: Legal framework

Legislation already adopted

- INSPIRE Directive
- Technical Regulations on:
  - Metadata
  - Data specifications Annex I
  - Network Services (Discovery, View, Download, Transform)
- National and Regional transposition in 27 EU Member States

Legislation to be adopted by mid 2013

- Technical Regulations on:
  - Data specifications annex II-III
  - Invoke Services and Spatial Data Services

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Implementing INSPIRE in Member States

Full deployment of the infrastructure by end 2019. But:

- Implementation of **interoperable components** ongoing:
  → many spatial data sets and services cannot be discovered yet

- Close **cooperation** between EU and Member States proves helpful

- Coordination **beyond legal requirements** needed:
  – Central management of common code lists, data models etc.
  – Semantic interoperability even more difficult than technical interoperability

- Data and service **sharing** lagging behind

Need to intensify coordination at EU level (DG ENV, Eurostat, Joint Research Centre):

- Better exploit Member State activities
  – Follow up and support implementation
  – E.g. tools for conformance testing

- Show the **usefulness** of the infrastructure:
  – Show cases, "killer" applications
  – Get detailed user requirements
  – Deploy Geoportal services

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Can INSPIRE contribute to a Global SDI?

■ INSPIRE is an interesting model for developing not only a technological infrastructure, but also shared practices and working methods via collaboration and partnership.

■ INSPIRE architectural approach is suitable for multi-country situations in which Spatial Data Infrastructures already exist in some form

■ A GSDI can benefit from
  – INSPIRE Data and Services (27MS + many others)
  – INSPIRE Specifications and Guidelines
  – Lessons learnt on use of existing standards

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Can the **INSPIRE** model *inspire* **GGIM***?*

- **Innovative dual approach**
  - <u>Top-down</u>: INSPIRE is a framework Directive with implementing rules to be adopted in the coming years.
  - <u>Bottom-up</u>: Highest involvement of key stakeholders (*through the "Spatial Data Interest Community" concept*) needed for development, implementation and sustained operation
  - Openness and transparency in drafting implementing measures
  - Pilot Projects important to define/validate the implementing rules
  - Links and interfaces with Community (*GMES, eGov etc..)* and other international initiatives (*GEOSS, GSDI etc.*) essential

Inspire and standards

- INSPIRE as unique opportunity to test existing standards
  - Detect errors and inconsistencies
  - Stress performances
  - Identify additional requirements,…
- INSPIRE requests for changes of ISO and OGC standards
  - Mid term: possible divergences
  - Long term: complete alignment between INSPIRE specifications and international standards
- Global interoperability will be easier and SW vendors will clearly benefit if convergence is fully achieved

Conclusions

- INSPIRE could be a useful good practice for GGIM
- Opportunity for not reinventing the wheel (leapfrogging)

BUT:

- INSPIRE looks going well; but many challenges still ahead
- Integration in the EU is very different than elsewhere: Political will, institutional arrangements, legal aspects
- How it fits with other national/regional initiatives

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Thank you
for your attention!
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