



Proposal for a
**DIRECTIVE OF THE EUROPEAN PARLIAMENT
AND OF THE COUNCIL**

**establishing an infrastructure for spatial
information in the Community**

INSPIRE

<http://inspire.jrc.it/>

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DG Joint Research Centre

- Mission: to provide customer-driven **scientific and technical support** for the conception, development, implementation and monitoring of **European Union policies**.
- The JRC functions as a **reference centre** of science and technology for the Union.
- Close to the policy-making process, it serves the common interest of the Member States, while being **independent of special interests**, whether private or national.
- 7 institutes in 5 countries, over 2000 people

JRC's role

1. To provide the technical coordination of the **INSPIRE** initiative with Commission and Member States (2° role of the INSPIRE Secretariat); to guarantee the exchange of information between INSPIRE Spatial Interest groups; to provide cross-thematic harmonization for the development of the INSPIRE implementing rules (including the link between INSPIRE and GMES); and to develop/upgrade prototype services for INSPIRE (EU-GeoPortal).
2. To act as JRC GI **Technical Office** providing the scientific and technical support to the services of the Commission and to the European GI community at large; to coordinate the Research Agenda with European/international research community; to play a leading role in GeoSpatial standardisation initiatives (ISO TC 211, CEN TC 287, OGC); and to raise awareness (through training and dissemination).
3. To develop/upgrade **interoperable spatial information services** (according to INSPIRE principles) in collaboration with EEA; and to provide support to JRC for the development of spatial services and spatial databases needed for Regulations and Policies.

Overall context

- Increasing calls for more information to support environmental policies
- Difficulties to manage existing information flows and obtain timely, accurate and policy-relevant information
- Need to take into account differentiation across regions with respect to the state of the environment
- Revision of approach to reporting and monitoring, moving to concept of sharing of information
- Spatial information plays a special role: early action needed



Outline

- Overview of the Proposal
- Requirements and implementing rules
- Implementing strategy



Overview of the proposal



Objectives

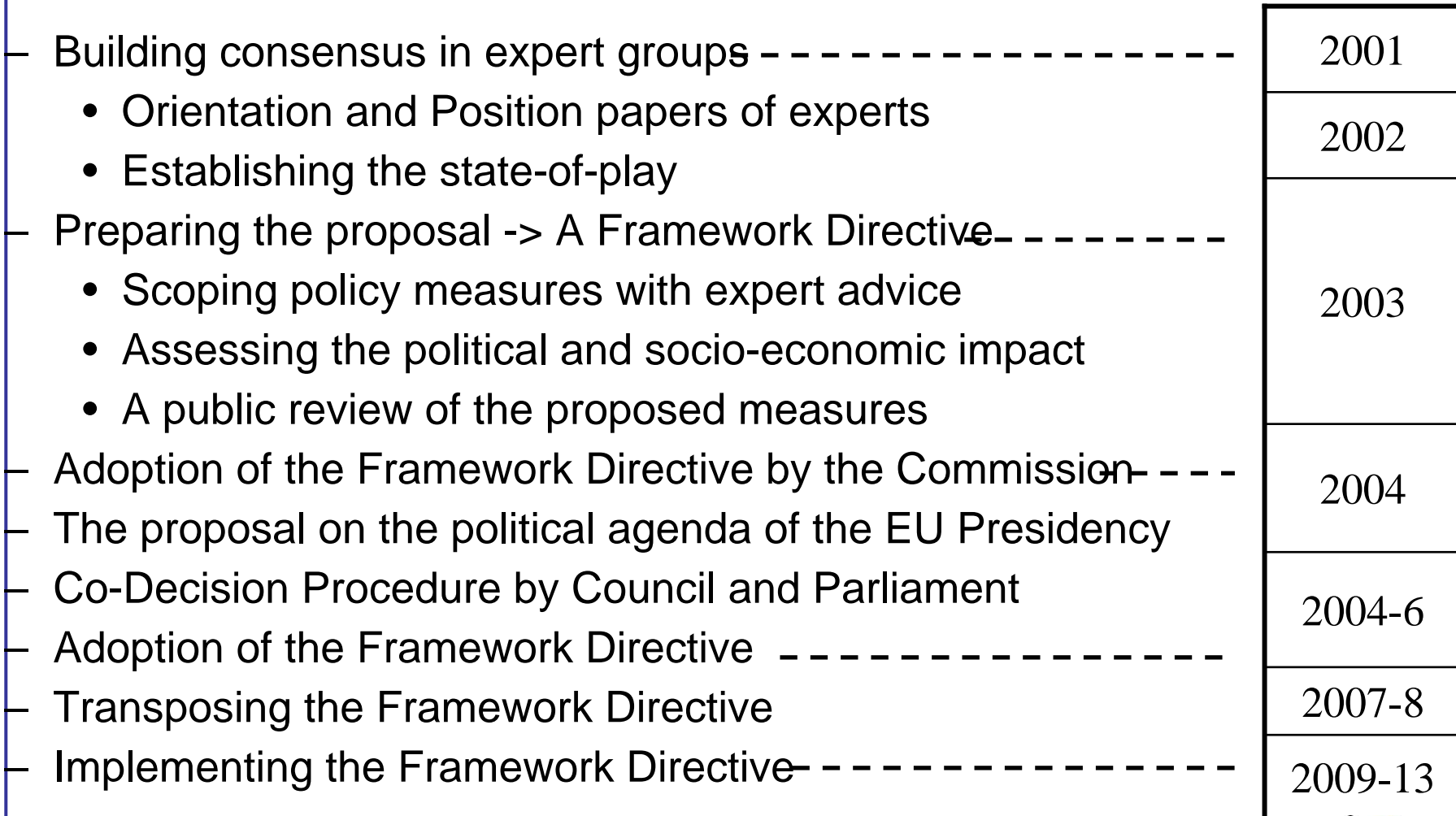
- **Deal with obstacles** to use of spatial information to support environmental policy-making and management
- Support to **streamlining** spatial information flows and information collection
- Promote coordination of stakeholders **across sectors and across levels of government** with respect to spatial information provision

*Help providing the knowledge base for **policies affecting the environment** in order to contribute to sustainable development*

The Process (long one... -:) but needed !

Bottom-up Stakeholder Involvement

Joint Research Centre



Proposal INSPIRE Framework Directive

- Overview -

- I. General provisions**
- II. Metadata**
- III. Interoperability of spatial data sets and services**
- IV. Network services**
- V. Data-sharing and re-use**
- VI. Coordination and complementary measures**
- VII. Final provisions**

This overview addresses the main issues only

VI - Coordination and complementary measures -

- Coordination at Member State level: to be organised by the MS
- Coordination at EU level: by Commission with support of EEA
- Implementation of many measures supported by implementation rules adopted by Comitology

Proposal INSPIRE Framework Directive

I - General Provisions-

- Establish an infrastructure for spatial information in the EU to support:
 - environmental policies and
 - policies that affect the environment,
- Based on infrastructures of the Member States that include
 - metadata, spatial data sets and services; network services; agreements on sharing, access and use; and coordination and monitoring mechanisms, processes and procedures.

Proposal INSPIRE Framework Directive I - General Provisions-

What is covered ?

- spatial data
 - related to EU territory, in electronic format, public sector data, covers themes in annex I, II and III.
 - provisions for third party data - but always subject to third party consent
- "spatial data services" for those spatial data



Thematic Scope Annex I - II

Annex I

- Coordinate reference systems
- Geographical grid systems
- Geographical names
- Administrative units
- Transport networks
- Hydrography
- Protected sites

Annex II

- Identifiers of Properties
- Elevation (including terrestrial elevation, bathymetry and coastline)
- Land cover
- Cadastral parcels
- Ortho-imagery

Thematic Scope

Annex III

- Statistical units
- Buildings
- Soil
- Geology
- Land use
- Human health and safety
- Government service and 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 spatial features
- Sea regions
- Bio-geographical regions
- Habitats and biotopes
- Species distribution
- Oceanic spatial features

Proposal INSPIRE Framework Directive

II – Metadata -

- Establishment of catalogues for spatial data and for services
- Progressive implementation until 6 years after entry into force of Directive
- Metadata is the “fuel” of the search engine to the spatial information



III – Interoperability of spatial data sets and services

- Harmonised spatial data specifications
 - the key to solving problems with interoperability
 - adopted through comitology
 - more stringent for Annex I and II than for Annex III
 - earlier for Annex I than for Annex II and III
- Two years after adoption: new or updated spatial data will become interoperable
- No need to replace MS data or systems

Proposal INSPIRE Framework Directive

IV - Network services -

- Upload services
 - allow to make spatial data accessible
 - available to the public authorities
 - available to interested third parties, provided that certain conditions are met
- Network services
 - discovery services (free of charge);
 - view services (free of charge);
 - download services;
 - transformation services;
 - services to invoke “spatial data services”

Proposal INSPIRE Framework Directive IV - Network services -

- Network services are the window to INSPIRE
- Community Geo-portal, in addition to national access points
- Various derogations (security, justice, confidentiality, etc...)
- Services can run on top of existing systems: no need to replace them!

Proposal INSPIRE Framework Directive

V - Data-sharing and re-use -

- For public authorities:
 - barrier-free sharing of spatial data sets and services...
 - for public tasks that may have a direct or indirect impact on the environment.
 - access of institutions and bodies of the Community
- For third parties:
 - measures to reduce barriers for re-use to be adopted by comitology

- 1) builds upon **existing data and systems** in the MS
- 2) will promote **the vertical integration of local, regional and national data** in a consistent EU framework
- 3) will be the foundation for a **broader cross-sectoral tool** that can be used by and extended to other policy domains, promoting **integration**
- 4) will become an important tool for **a new approach to monitoring and reporting**, cutting down overlaps and redundancies and reducing administrative burden
- 5) has **only limited cost implications** for the MS as it builds upon existing investments in the MS
- 6) has the potential of **huge benefits**, for all policies with a spatial dimension



Requirements and implementing rules

Overview of INSPIRE requirements

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- INSPIRE lays down general rules for the establishment of an infrastructure for spatial information in Europe. This infrastructure shall be based on infrastructures for spatial information established and operated by the Member States.
- The component elements of those infrastructures shall include:
 - metadata,
 - spatial data sets as described in Annexes I, II, III of the proposal for a Directive and spatial data services;
 - network services and technologies;
 - agreements on sharing, access and use;
 - co-ordination and monitoring mechanisms,
 - process and procedures.
- Member States will have to implement different measures to have these components into place.

Implementing Rules

- For a number of those measures, Implementing Rules will have to be adopted first through the Comitology Procedure according to a timetable set by INSPIRE. The year of adoption is indicated for each Implementing Rule in the detailed sections below (on the basis of an entry into force of INSPIRE at the beginning of 2007) together with the deadline for Member States to implement the measures detailed in a given Implementing Rule.
- When INSPIRE does not refer to a specified date adoption, then the Implementing Rule will have to be adopted after the Transposition Phase [2009], hence, two years after its entry into force [2007].

Metadata requirements

- INSPIRE will require the MS to create comprehensive metadata of a certain quality for spatial data sets and services, and to keep them up-to-date.
- **Implementing Rules for the creation and updating of the metadata** shall be adopted through the Comitology procedure in [2007].
- The metadata will have to be created by the Member States within 3 years from the entry into force of INSPIRE for the Annex I and II spatial data sets [2010] and within 6 years for the data sets listed in Annex III [2013].

Spatial data harmonisation requirements 1/2

- Implementing Rules regarding the interoperability of the spatial data sets and services will take the form of:
 - Harmonised data specifications
 - Arrangements for the exchange of spatial data
- For all spatial data in Annex I, II, III the harmonised data specifications shall cover the definition and classification of the spatial objects relevant to the spatial data and the way in which they are geo-referenced.
- In particular for Annex I, II data, the implementing rules shall address the following harmonisation and exchange aspects of spatial data:
 - a common system of unique identifiers for spatial objects;
 - the relationship between spatial objects;
 - the key attributes and the corresponding multilingual thesauri commonly required for a wide range of thematic policies;
 - the way in which information on the temporal dimension of the data is to be exchanged;
 - the way in which updates of the data are to be exchanged.

Spatial data harmonisation requirements 2/2

- **The Implementing Rules for harmonised data specifications**, will be adopted 2 years after the entry into force of INSPIRE for the Annex I spatial data sets [2009] and by 5 years [2011] for the data sets listed in Annex II and Annex III.
- **The Implementing Rules on the arrangements for the exchange of spatial data** in Annexes I, II and III will be adopted 2 years after the entry into force of INSPIRE [2009].
- Member States will then ensure that spatial data sets collected or updated later than two years after the date of adoption of the Implementing Rule conform to the specifications. This means, as from [2011] for Annex I, and as from [2013] for Annex II and Annex III.



Network services & interoperability requirements 1/2

- The Directive will require Member States to establish and operate a network of the following services for the spatial data sets and metadata:
 - Upload services;
 - Discovery services;
 - View services;
 - Download services;
 - Transformation services,
 - “Invoke spatial data services” services, enabling data services to be invoked.
- Those services shall be easy to use and accessible via the Internet or any other appropriate means of telecommunication available to the public
- To this end the Commission shall establish a Community Geo-portal [2009] through which Member States will provide access to the services, as well as through their own access points, if they wish to do so.

Network services & interoperability requirements 1/2

- **Implementing Rules for network services** (technical specifications for those services, including minimum performance criteria) shall be adopted through the Comitology Procedure [2007]. They will have to be implemented by Member States within the Transposition Phase. However, as services also depend on the availability of Metadata [2010 for Annex I and II, 2013 for Annex III], they will only have to be functional by [2010].
- **Implementing Rules laying down obligations (compliance of metadata, services and interoperability) on third parties** which may want to use the upload services, shall be adopted through the Comitology Procedure [2007] and implemented by the Member States within the Transposition Phase by [2009].

Data Sharing and re-use requirements

- INSPIRE requires Member States to adopt measures for the sharing of spatial data sets and services between Public Authorities [2009].
- **Implementing Rules to increase the potential of re-use of spatial data sets and services by third parties** for will be adopted through the Comitology Procedure [2009].
- **Implementing Rules governing access and rights of use to spatial data sets and services** for Community institutions and bodies will be adopted through the Comitology Procedure [2007].



Coordination and complementary measures (monitoring, reporting)

- INSPIRE requires Member States to designate appropriate structures and mechanisms for coordinating the contributions of all stakeholders, including identification of needs, provision of information on practices and feedback on the implementation of INSPIRE [2009].
- Member States shall designate a public authority responsible for contact with the Commission [2007].
- The Commission, assisted by the European Environment Agency, shall be responsible for co-ordination at Community level [2007].
- The Commission shall be assisted by a Regulatory Committee with one representative per Member States [2007].
- Member States shall monitor the implementation and use of their infrastructures for spatial information and make information on the monitoring accessible to the Commission [2009].
- Implementing Rules for monitoring will be adopted through the Comitology Procedure [2007].
- Member States shall report to the Commission on the implementation of INSPIRE. A first report is due by [2010], 3 years after entry into force. The second report by [2013], 6 years after entry into force.
- Implementing Rules for reporting will be adopted through the Comitology Procedure [2008].



Milestone	Description
2007	Establishment of the INSPIRE Committee (within 3 months from entry into force)
2007	Adoption of Implementing Rules for the creation and up-dating of the metadata Adoption of Implementing Rules for network services Adoption of Implementing Rules on third parties use of the upload services Adoption of Implementing Rules for monitoring Adoption of Implementing Rules governing access and rights of use to spatial data sets and services for Community institutions and bodies
2008	Adoption of Implementing Rules for reporting
2009	Adoption of Implementing Rules for the use of spatial data sets and services by third parties
2009	Adoption of Implementing Rules for harmonised spatial data specifications of Annex I and for the exchange of Annex I, II and III spatial data
2009	Designation of responsible public authorities for spatial data sets and services
2009	Implementation of sharing framework of spatial data sets and services between public bodies
2009	Implementation of monitoring Implementation Rules
2010	Metadata available for spatial data corresponding to Annex I and Annex II spatial data
2010	Network services are operational
2010	Member States' First Report to the Commission
2011	New or updated spatial data sets available in accordance with Implementing Rules for harmonised spatial data specifications and exchange for Annex I spatial data
2011	Adoption of Implementing Rules for harmonised spatial data specifications of Annex II and Annex III spatial data
2013	Metadata available for Annex III spatial data
2013	New or updated spatial data sets available in accordance with Implementing Rules for harmonised spatial data specifications and exchange for Annex II and Annex III spatial data
2013	Member States' second report to the Commission



Implementing INSPIRE

- Challenges and Opportunities -

Towards Implementation

The Preparatory Phase (2005-2006)

- Parallel with Co-Decision procedure
- Focus on 'deliverables' - Prepare Implementing Rules
- Interim Organisational Structure

The Transposition Phase (2007-2008)

- Transposition of required measures Member States
- INSPIRE Committee adopts first Implementing Rules - 2007
- Organisational Structures in place (EC, MS,...)

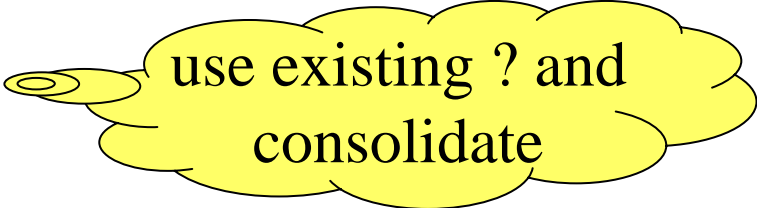
The Implementation Phase (2009-2013)

- Iterations, review, monitoring, reporting

The Preparatory Phase (2005-2006)

Key deliverables = Implementing Rules

Implementing Rules



use existing ? and
consolidate

Key challenges



opportunity

Assure a bottom-up approach = involve stakeholders
in development (provision of existing, drafting), review, testing

Avoid confusion, duplication, inefficiency, conflicts



The concept of Spatial Data Interest Communities 1/2

- Spatial Data has multiple communities of users, sharing the same region, industry or thematic issue.
- INSPIRE, can be approached as a network of Spatial Data Interest Communities (SDICs), organised by region, by industrial sector and thematic issue, each with its own audience of data providers and users looking to explore spatial data.
- SDICs bundle the human expertise of users, producers and transformers of spatial information, technical competence, financial resources and policies, with an interest to better use these resources for spatial data management and the development and operation spatial information services, and hence, through their activities drive the demand for spatial data and spatial information services.



The concept of Spatial Data Interest Communities 2/2

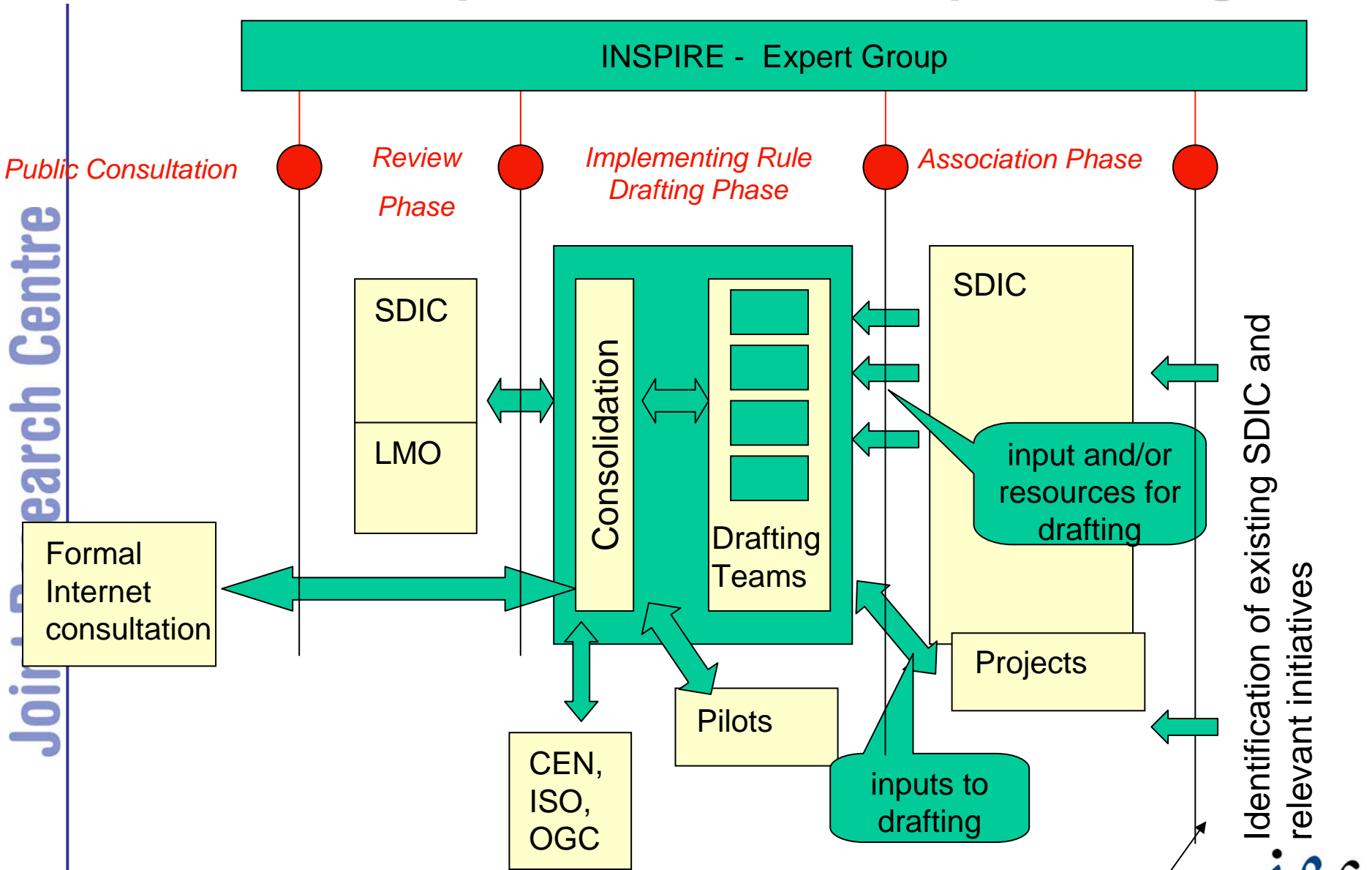
- Spatial Data Interest Communities naturally form strategic partnerships: public-public, public-private and private-private partnerships, aligning their demand for spatial data and services, together with their investments.
- The environmental monitoring and reporting in the context European regulatory obligations is one of driving forces behind the natural formation of Spatial Data Interest Communities. Common themes such air quality reporting, the Water framework directive, the integrated management of coastal zones, the management of the NATURA2000 areas, etc., makes users, producers and custodians of spatial data jointly engage in the development of rules for meta data, common data models and content standards, exchange and use policies, linked service architectures etc.
- At national and regional level spatial data infrastructures strategies and organisational structures are coming into place to again tackle the same issues, however, with the growing recognition that such discussion and agreements should preferable cross their administrative and juridical boundaries



The roles of Spatial Data Interest Communities

- The different roles of the Spatial Data Interest Communities in the drafting, review and testing of the Implementing rules can therefore be summarized as follows.
 - to identify and describe user requirements (optimal to be understood as in line with environmental policy induced obligations, as opposed to “maximum” requirements beyond the scope INSPIRE and beyond realistically available resources.);
 - to provide expertise to INSPIRE drafting teams;
 - to participate in the review process of the draft Implementing Rules;
 - to develop, operate and evaluate implementation pilot projects.
 - to develop initiatives for guidance, awareness raising and training in relation with the INSPIRE implementation

The process to draft implementing rules



SDIC – Spatial Data Interest Community
LMO Legally Mandated Organisation

*Call for interest
 for SDICs*

Conclusions

- INSPIRE working program currently under preparation
- Highest involvement of key stakeholders through the SDIC concept
 - Regional and National SDI are considered SDICs
- Openess and transparency in drafting implementing measures (including formal public consultation)
- Pilots and Projects play a key role to define and validate the implementing rules.