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INSPIRE – Infrastructure for Spatial Information in Europe

INSPIRE – prostorová informační infrastruktura ve Společenství

.

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Joint Research Centre
Institute for Environment and Sustainability, SDI Unit

Institute for Environment and Sustainability

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, 2000 people

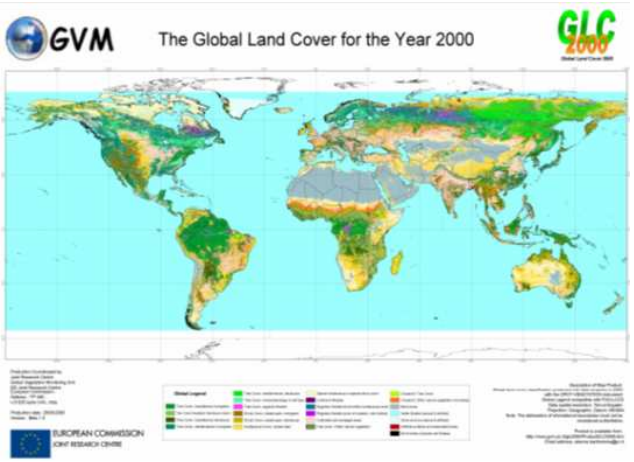
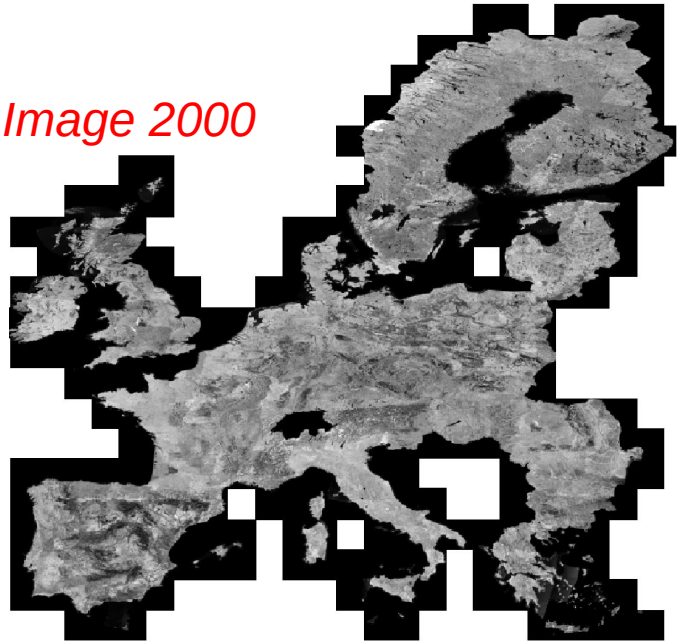


Image 2000

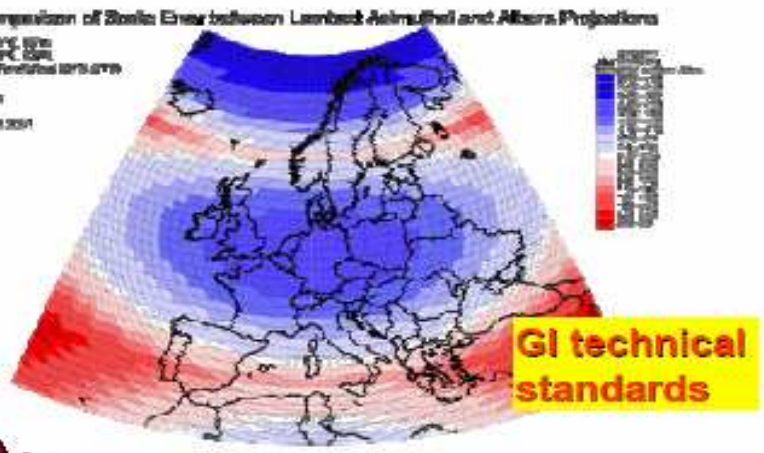


ESDI Concept

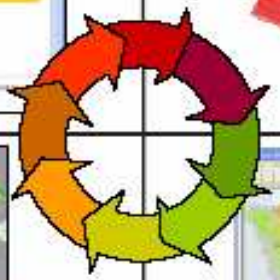
Launched in September 2001

MoU signed in April 2002 by Commissioners Wallström, Busquin and Solbes provides the basis for continued co-operation between DG ENV, EUROSTAT and the JRC for developing the initiative

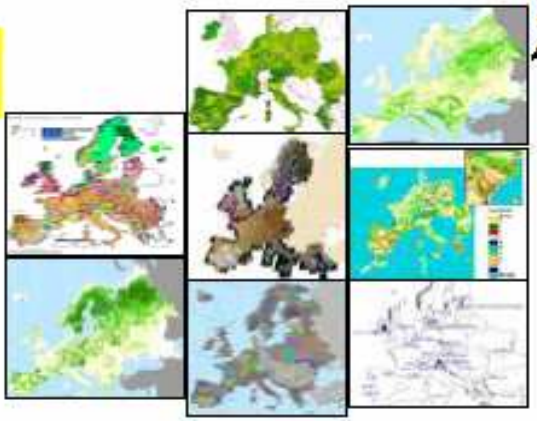
GI Institutional framework



GI technical standards



Basis GI data sets



Spatial Information Services

INSPIRE Principles

- **Data collected once** and **maintained at the level where this can be done most effectively.**
- **Spatial information from different sources across Europe combined seamless and shared** between many users and applications.
- Information collected at one level to be **shared between all the different levels**, detailed for detailed investigations, general for strategic purposes.
- Geographic information needed for good governance at all levels should be abundant under conditions that do not refrain its extensive use.
- **Easy discovering which geographic information is available**, fits the needs for a particular use and under which conditions it can be acquired and used.

Geographic data becomes easy to understand and interpret *because visualized within the appropriate context selected in a user-friendly way.*

Proposal for the INSPIRE Directive

INSPIRE lays down **general rules** for the establishment of an infrastructure for spatial information in Europe to support:

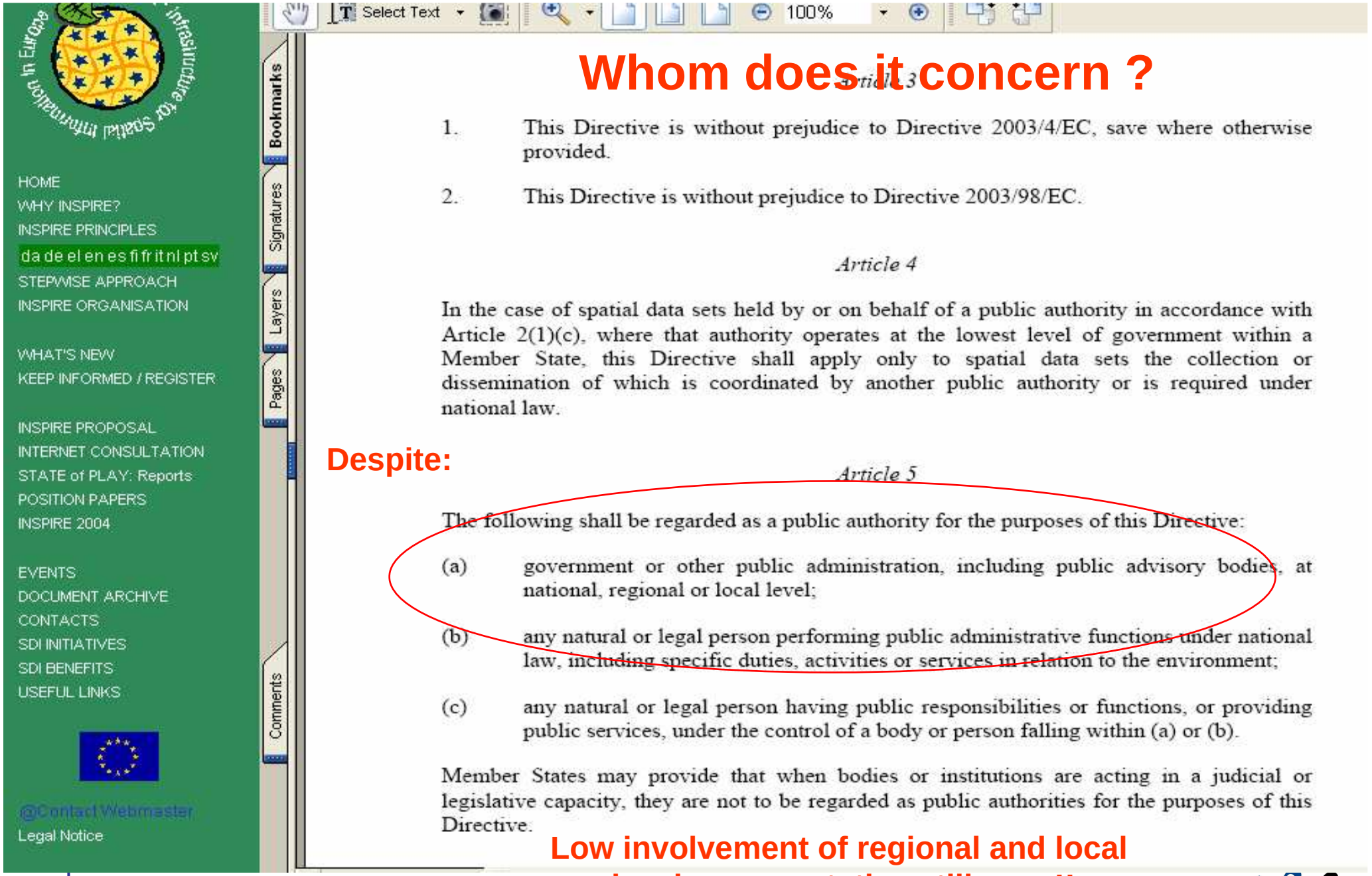
- environmental policies and
- policies that affect the environment

This infrastructure shall be based on infrastructures for spatial information established and operated by the Member States.

INSPIRE requires also specific implementing rules to be adopted through Comitology

Components of the infrastructure

- **metadata**
  - About data and spatial data services
  - Information about conformity to the specifications, rights of use, quality, data owner
- **spatial data sets and services**
  - Common conceptual model (objects/features spatial schema)
  - Feature catalogue (semantics and ontology)
  - Unique identifiers
  - Versioning
  - Portrayal
  - Schema translation
- **network services**
  - Discovery, View
  - Download, Upload
  - Transformation
  - “Invoke spatial data services”;
- **agreements on sharing, access and use**



Whom does it concern ?

Despite:

Low involvement of regional and local level representatives till now !!

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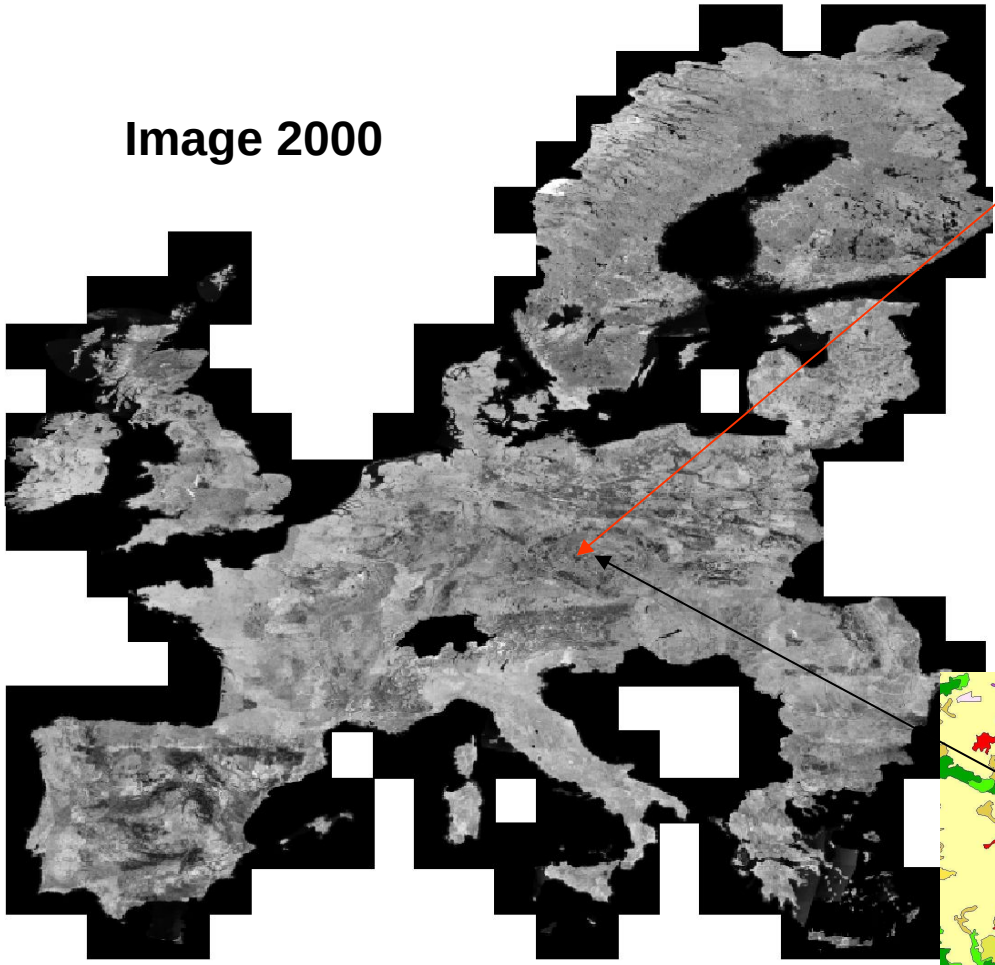
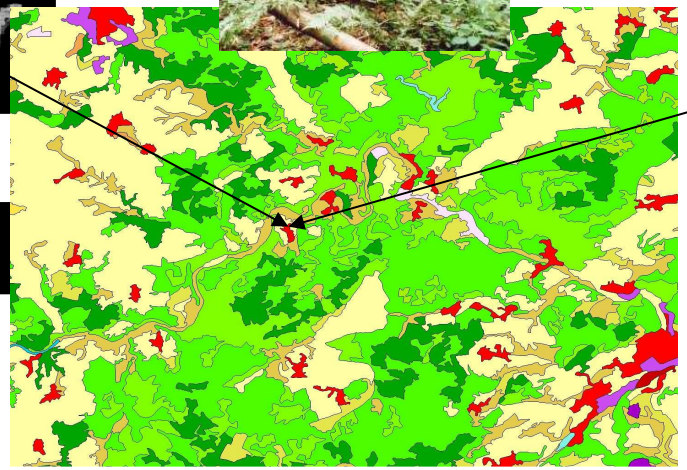
WHY ?

Connecting: Local – Regional/National – European

Image 2000

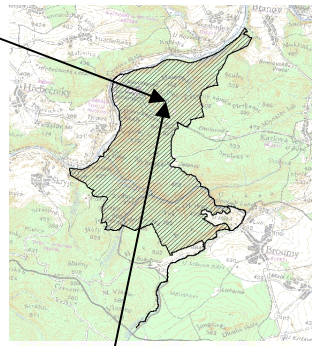


Corine Landcover



Natura 2000
Czech Republic

CZ0214011



Spatial plan and other planning or **management** tools

From Commission proposal to Community Directive implementation

- Preparatory phase (2004-2006)
  - *Co-decision procedure*
  - Preparation of Implementing Rules
- Transposition phase (2007-2008)
  - Directive enters into force
  - Transposition into national legislation
  - INSPIRE Committee starts its activities
  - Adoption of Implementation Rules by Committology
- Implementation phase (2009-2013)
  - implementation and monitoring of measures

Legislative procedure

First reading

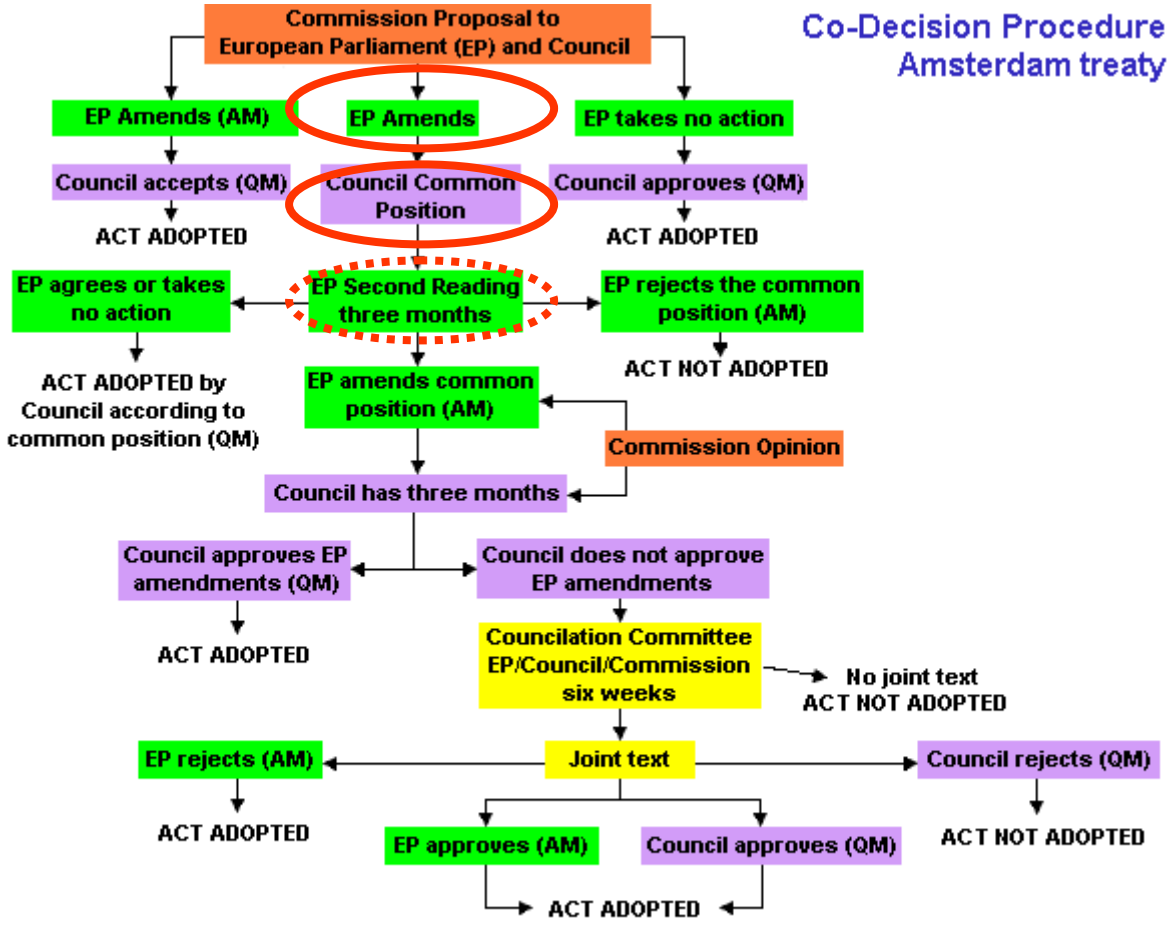
Parliament: 07-06-2005

Council: 24-06-2005

Second reading

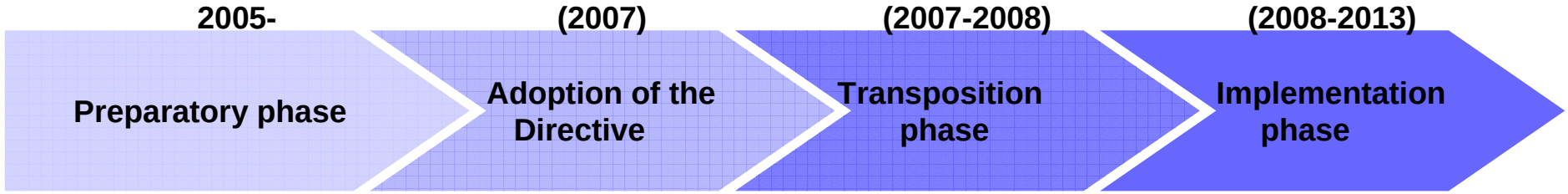
Parliament: 14-06-2006 (planned)

Conciliation



AM = Absolute Majority of Members in European Parliament
QM = Qualified Majority Vote in European Council

How to implement INSPIRE ?



- ✓ Co-decision procedure
- ✓ Preparation (drafting) the Implementing Rules (IR)
- ✓ JRC – ESTAT coordinates

- ✓ Adoption (EP + Council)
- ✓ In force (20th day after publication in OJ)
- ✓ Transposition into national legislation

- ✓ Commitology: adoption of IR
- ✓ Consolidation of IR in Commission Regulations / Decisions
- ✓ Transposition into national legislation

- ✓ MS implement
- ✓ Commission monitors

Overview of requirements

- metadata*
- spatial data sets and spatial data services*
- network services*
  - EU geo-portal
- access and rights of use for Community institutions and bodies**
- monitoring and reporting mechanisms**
- process and procedures

** technical: under JRC responsibility*

*** legal/procedural: under Eurostat responsibility*

Technical requirements

- **Metadata**
  - To create comprehensive metadata of:
    - spatial data
    - spatial data services
  - To keep metadata up to date
- **Network services and interoperability**
  - Upload services;
  - Discovery services;
  - View services;
  - Download services;
  - Transformation services,
  - Invoke spatial data services
- **Data interoperability**
  - Harmonised data specifications
    - Annex I, II, III:
  - Specifications for exchange of spatial data

INSPIRE Data Themes

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

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

INSPIRE Roadmap (1/3)

Mile-stone	Mile-stone	Description
2007	X	Entry into force of INSPIRE Directive
2007	X+3m	Establishment of the INSPIRE Committee
2007	X +1y at latest	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 and reporting** Adoption of Implementing Rules governing **access and rights of use to spatial data sets and services for Community institutions and bodies**
2009	X + 2y at latest	Adoption of Implementing Rules for **the use of spatial data sets and services by third parties**
2009	X + 2y	Adoption of Implementing Rules for **harmonised spatial data specifications** and for **the exchange of Annex I spatial data**

Based on the hypothesis
2 years for co-decision process

Roadmap (2/3)

Mile-stone	Mile-stone	Provisions of Directive are brought into force in MS (transposition date)
2009	X + 2y	Designation of **responsible public authorities** for spatial data sets and services
2009	X + 2y	Implementation of **sharing framework** of spatial data sets and services between public bodies
2009	X + 2y	Implementation of provisions on **monitoring**
2009	X + 2y	**Network services** are operational
2010	X + 3y	**Metadata** available for spatial data corresponding to **Annex I** and **Annex II** spatial data
2010	X + 3y	Member States' **First Report** to the Commission. From then onwards MS have to present reports every 3 years

Roadmap (3/3)

Mile-stone	Mile-stone	Provisions of Directive are brought into force in MS (transposition date)
2011	X + 4y	**New or updated spatial data** sets available in accordance with Implementing Rules for **harmonised** spatial data **specifications** and **exchange for Annex I** spatial data
2012	X + 5y	Adoption of Implementing Rules for **harmonised spatial data specifications** and for the **exchange of Annex II and Annex III** spatial data
2013	X + 6y	**Metadata** available for **Annex III** spatial data
2014	X + 7y	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
2014	X + 7y	Commission's **report to the EP and the Council**. From then onwards the Commission has to present reports every 6 years

The broader context

- The implementation of INSPIRE needs to consider the broader context of existing initiatives which could contribute to ESDI

- The INSPIRE Work Programme should interface with those partnerships and initiatives where relevant and establish synergy*

*e.g. GEOSS, GMES, GALILEO, GSDI,...

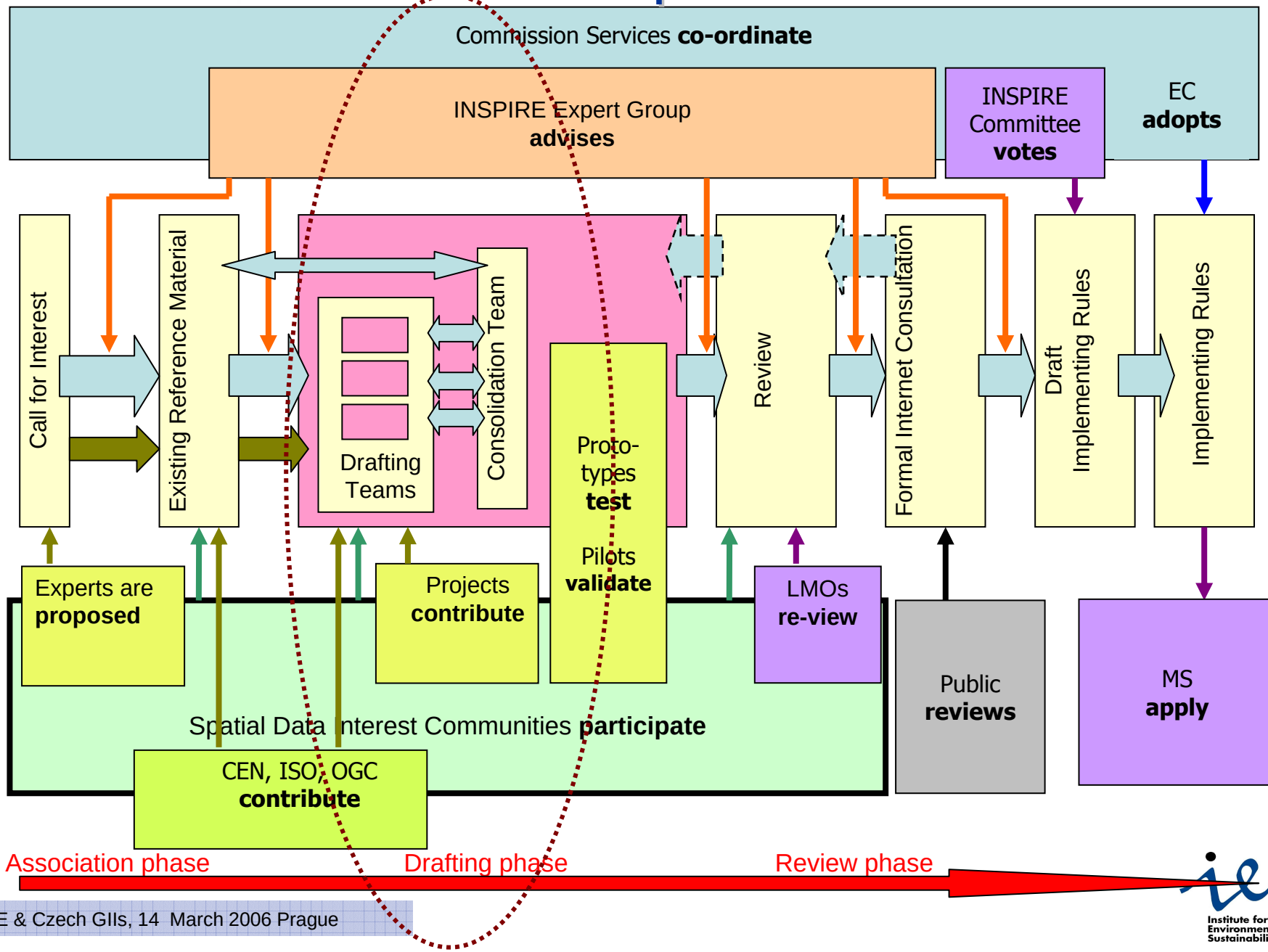
concept of Spatial Data Interest Communities (SDIC)

- 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).

The role of Spatial Data Interest Communities (SDIC)

- collect and describe user requirements,
- submit/develop reference materials
- allocate experts to the drafting teams,
- participate in the review process,
- implement pilot projects
  - to test/revise/develop the draft Implementing Rules,
- make cost/benefit analysis
  - to assess costs of the draft Implementing Rules,
- contribute to awareness raising and training

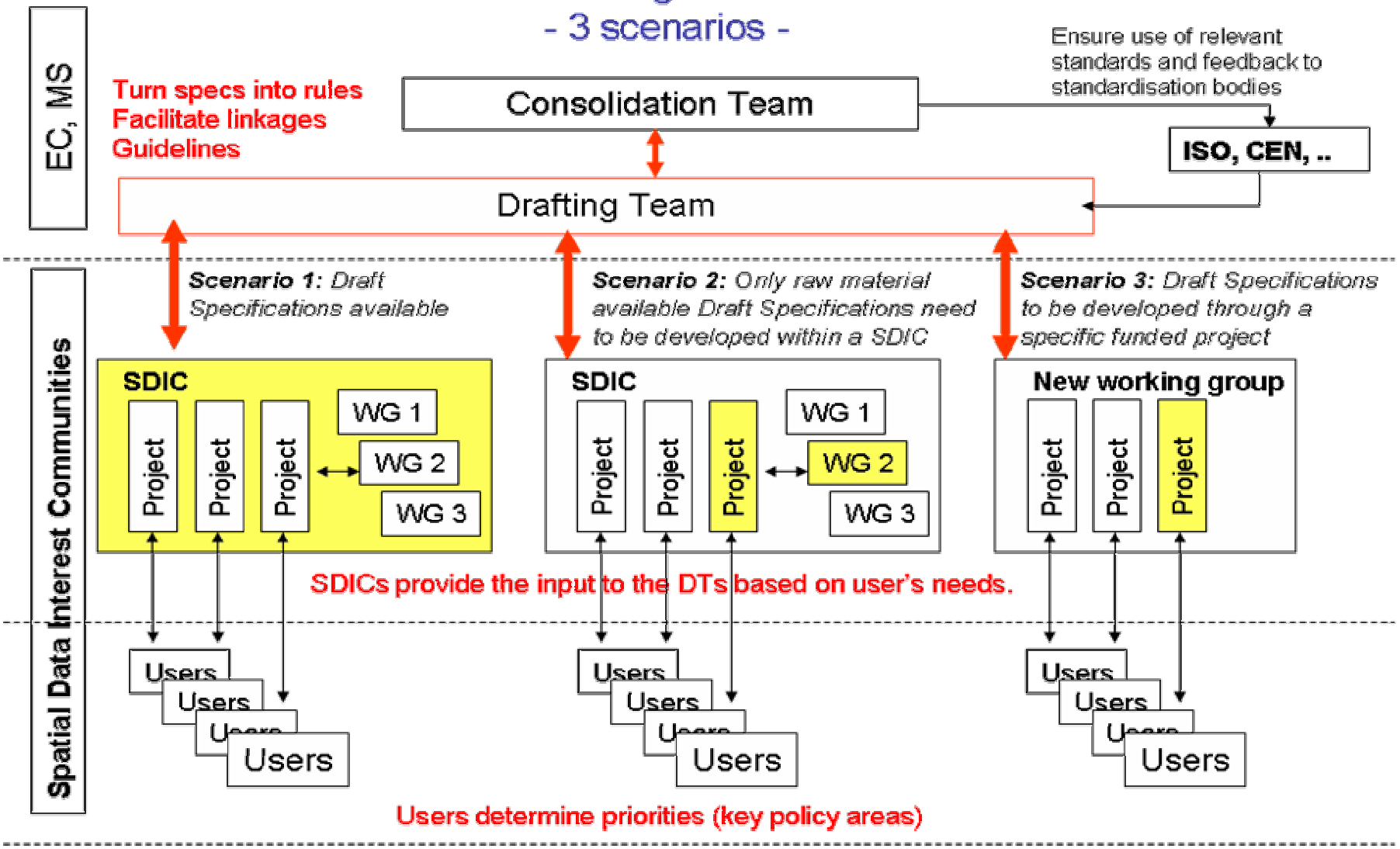
INSPIRE process



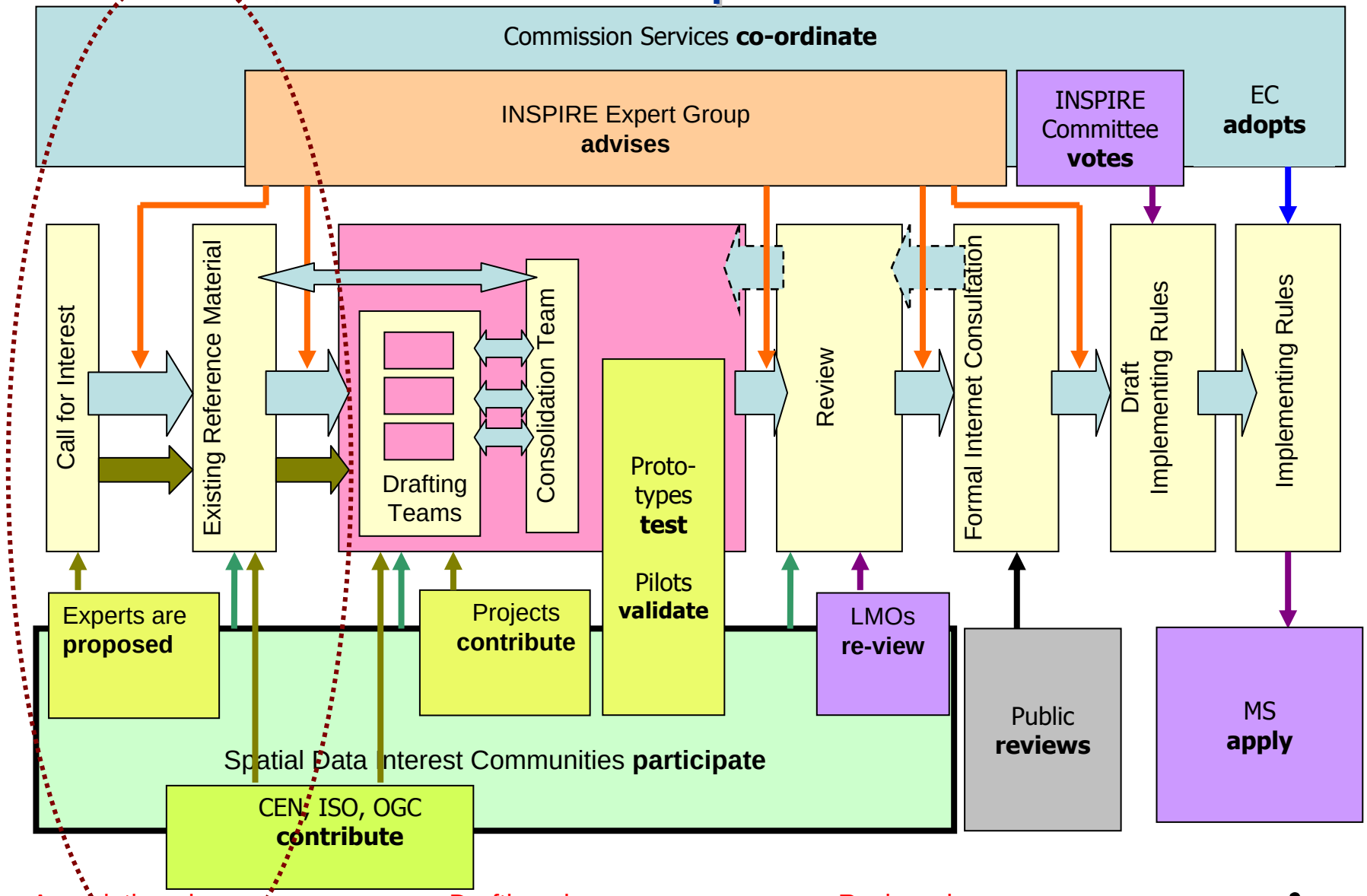
The role of Drafting Teams (DT)

- to analyse and review the reference material
- to write draft INSPIRE Implementing Rules
- to provide recommendations to the CT (in case of conflicting technical specifications)
- to provide suggestions to the CT for testing any proposed specification

Drafting Phase
- 3 scenarios -



INSPIRE process



Results of the Call

	First analysis (07/05/2005)	Currently (14/03/2006)
Spatial Data Interest Communities (SDICs)	133	154 (+16%)
Legally Mandate Organisations (LMOs)	82	95 (+16%)
Proposed Experts	180	209 (*19/01/06*) (+16%)
Referenced Materials	90	198 (*19/01/06*) (+120%)
Identified Projects	91	102 (*19/01/06*) (+12%)

Registered LMOs per county

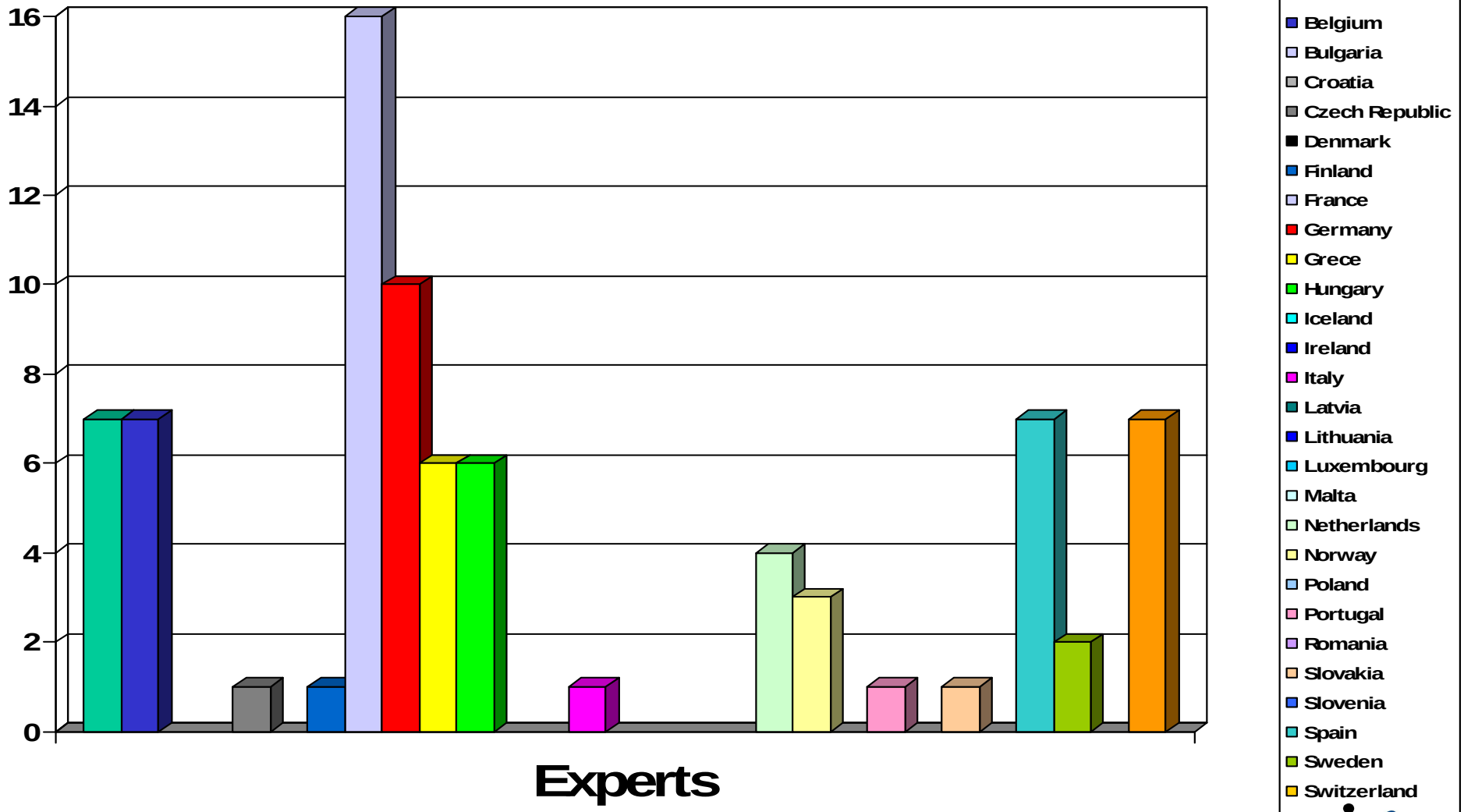
LMOs and SDICs

by origin

from the Czech Republic

- LMOs
  - CENIA / Czech Environmental Information Agency
  - Czech Office for Surveying, Mapping and Cadastre
- SDICs
  - OGESDI / Open standards based geospatial services development and implementation
  - RurSDI / SDI for rural activities

Contribution registered by LMOs per country



Low participation of the NMSs

in contrast with their activities and achievements in the GI&GIT domain

WHY ??

- There are no Experts
- There are no resources
- They did not know about
- They were not interested
- They were not allowed

???

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INSPIRE Drafting Teams
Progress made
the metadata example

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DT Metadata
Reference material 1/3

- 120 documents in total as of 15 Feb 2006, some repetition
  - Reports of national and other metadata initiatives/projects
  - Regional/local profiles (most ISO 19115 based)
  - And many also Dublin Core (DC) compliant to some extent
  - Most service metadata based on ISO 19119
  - **Special communities (WMO, EEA) addressed**
- Analysis
  - **Nearly all reference materials address the use of ISO 19115 for spatial data**
  - **Several profiles**
  - No radical changes identified
  - **Metadata for data well developed, metadata for services is starting**
    - Metadata for services seems only well developed (based on the reference material) in Germany
  - ISO 19119 is used for services
  - Dublin Core (DC) is often used
    - Useful for connection between geo- and e-government (general search)
    - Always an addition to ISO 19115 implementation (no DC-only implementations of metadata)
  - Other standards: mainly ISO 19139 (XML encoding of ISO 19115)

DT Metadata
Reference material 2/3

- Core metadata elements
  - Most core sets are based on the ISO 19115 core
  - Some core sets are based on OGC core (=DC)
  - Many core profiles that can give us ideas and we have to take in consideration
  - WMO version 0.2 profile makes extensions; none thought to be problematic
    - Differing viewpoints: ex. WMO defines new data type 007=irregular points, whereas many would consider this already covered by 001=vector
- Remarks
  - **Surprised about the lack of SOAP, WSDL and UDDI (SOA)**
    - Perhaps these are too close to implementation level
  - **Multi-lingual and multi-cultural is a bigger issue than only metadata**
    - The internet gives a lot of solutions (we have to learn from other communities). The multi-lingual thesauri is the only part that has to be addressed by our DT (or in combination with DT data specifications and harmonization)

DT Metadata
Reference material 3/3

- General conclusions
  - No real surprises
  - First:
    - ISO 19115 / ISO 19119
    - And also DC
    - No other standards but we have to keep the way open for future new standards
  - Second:
    - CEN WD European core for discovery
    - OGC, 2005, OpenGIS® Catalogue Services Specification 2.0
    - OGC, 2005, ISO19115/ISO 19119 Application Profile for CSW 2.0
  - CEN TC/287
    - The reference material for the CEN document is besides the specific reference material for specific topics the same for the discovery part (also some other issues of interest, for example the Mapping of the INSPIRE spatial data themes and ISO dataset Topic category)
    - Re-use the discovery part of the CEN document and look for improvements

DT Metadata

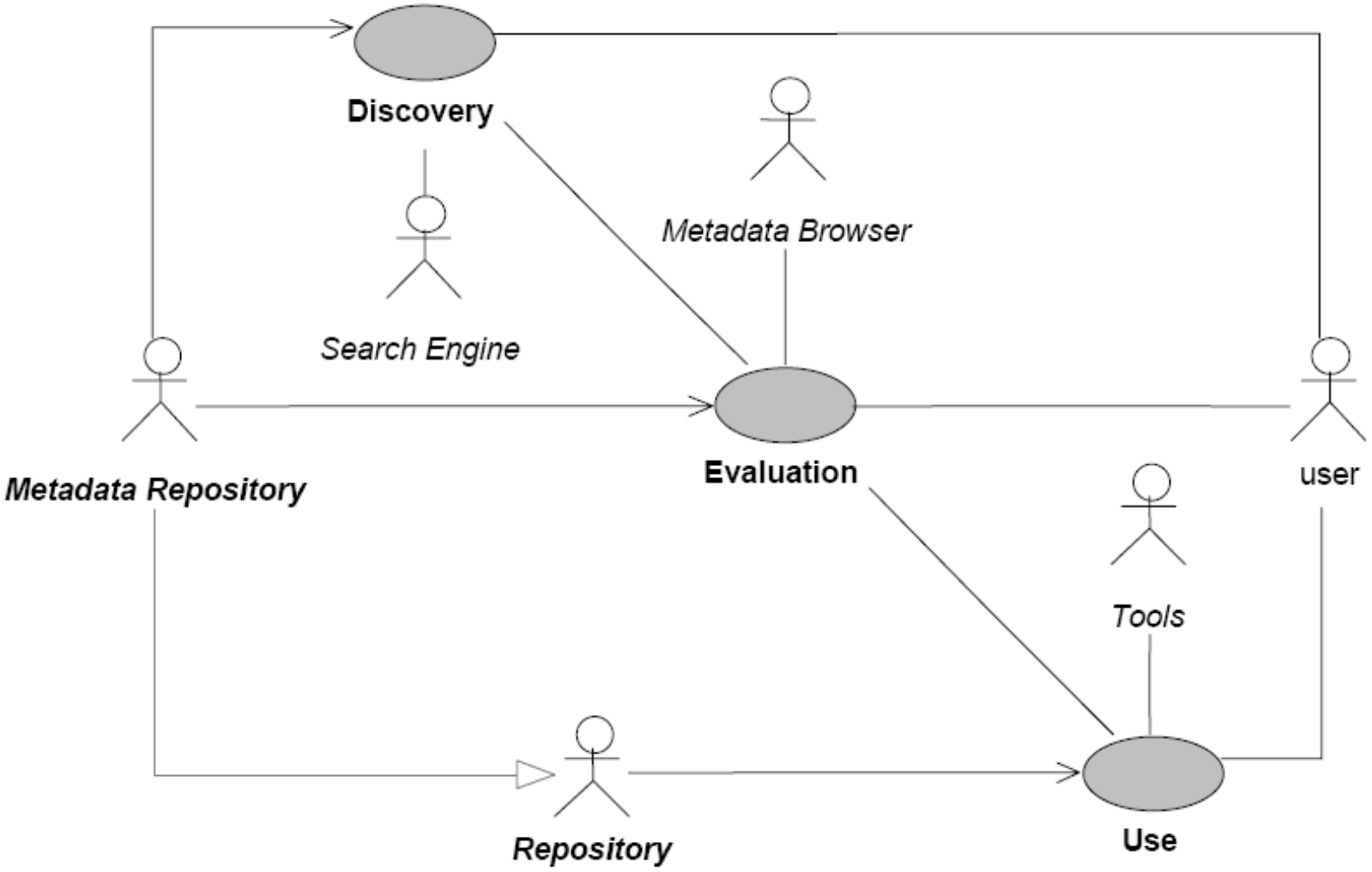

Figure 1 - The General Metadata Use Case

DT MD - Breakdown and milestones

Deliverable	Title	Milestone	Who
D 1.1	Requirements for the Definition of the INSPIRE Implementing Rules for Metadata	9/2005	CT
D 1.2	Defining requirements for content and structure of metadata for spatial data based on a survey of existing initiatives, reference material and solutions	1/2006	DT/CT[1]
D 1.3	Draft Implementing Rules for discovery metadata (including the draft core metadata element set) for reviewing	6/2006	DT
D 1.4	Extent of the Draft Implementing Rules for discovery metadata (including the draft core metadata element set) with metadata for use and evaluation and rules for extending the INSPIRE metadata set for specific spatial data themes needs for reviewing	8/2006	DT
D 1.5	Final draft Implementing Rules for discovery, use and evaluation metadata for spatial data and rules for extending the INSPIRE metadata set for specific needs of spatial data themes.	02/2007	CT/DT

[1] Contribution of CEN/TC287 WG5 is acknowledged.

Decisions taken at 1st coordination meeting 16-17/02/2007
CONSULTATION ON INTERMEDIATE DOCUMENTS

- ….
- Consultation with SDIC/LMO will be reinforced.
- SDIC/LMOs will be requested to comment on intermediate documents or to answer specific questions.
- The consultation will be launched (under request of a DT and approval of the CT) on the INSPIRE web site using on-line tools. The CT will be responsible to coordinate this process.
- Under request of the DT the consultation will be also used to address specific questions related to a better understanding of user requirements in specific fields.
- INSPIRE consultations will be open to ALL registered SDIC/LMOs.
- …..

Outlook

- 1st Coordination meeting (16-17 February)
  - Minutes soon available on INSPIRE web site
- Updated work programme Preparatory Phase
  - New version soon published on INSPIRE web site (March 2005)
- INSPIRE Expert Group meeting (20 June)
  - to be confirmed
- 12 EC GI&GIS ws (21 June)
  - INSPIRE Special SDIC Plenary
- INSPIRE Drafting Teams deliverables
  - Scheduled in the wp
  - Closer consultation/interaction with registered SDIC/LMOs foreseen
- Running Pilots/Projects
  - SDIGER, RISE, MOTIVE, ORCHESTRA, RELIT, ..
  - HMA, GSE, ..
- Link with standardisation
  - Joint meeting ESA-JRC-EUSC with OGC and OGC-E (29-30 March)
- ..

Conclusions

- INSPIRE is a Directive with implementing rules to be defined in the coming years
- Highest involvement of key stakeholders through the SDIC concept is needed
  - SDIC could contribute to make the process to develop INSPIRE manageable and efficient
- Openness and transparency in drafting implementing measures will be followed
  - including formal public consultation
- Pilots and Projects could play a key role to define and validate the implementing rules

Thank you for your attention !

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