

Infrastructure for Spatial Information in the European Community

INSPIRE and land-use

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Joint Research Centre
Institute for Environment and Sustainability
Spatial Data Infrastructures Unit



Rome, 12-06-2008



The Mission of the Joint Research Centre

... is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies.

As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union.

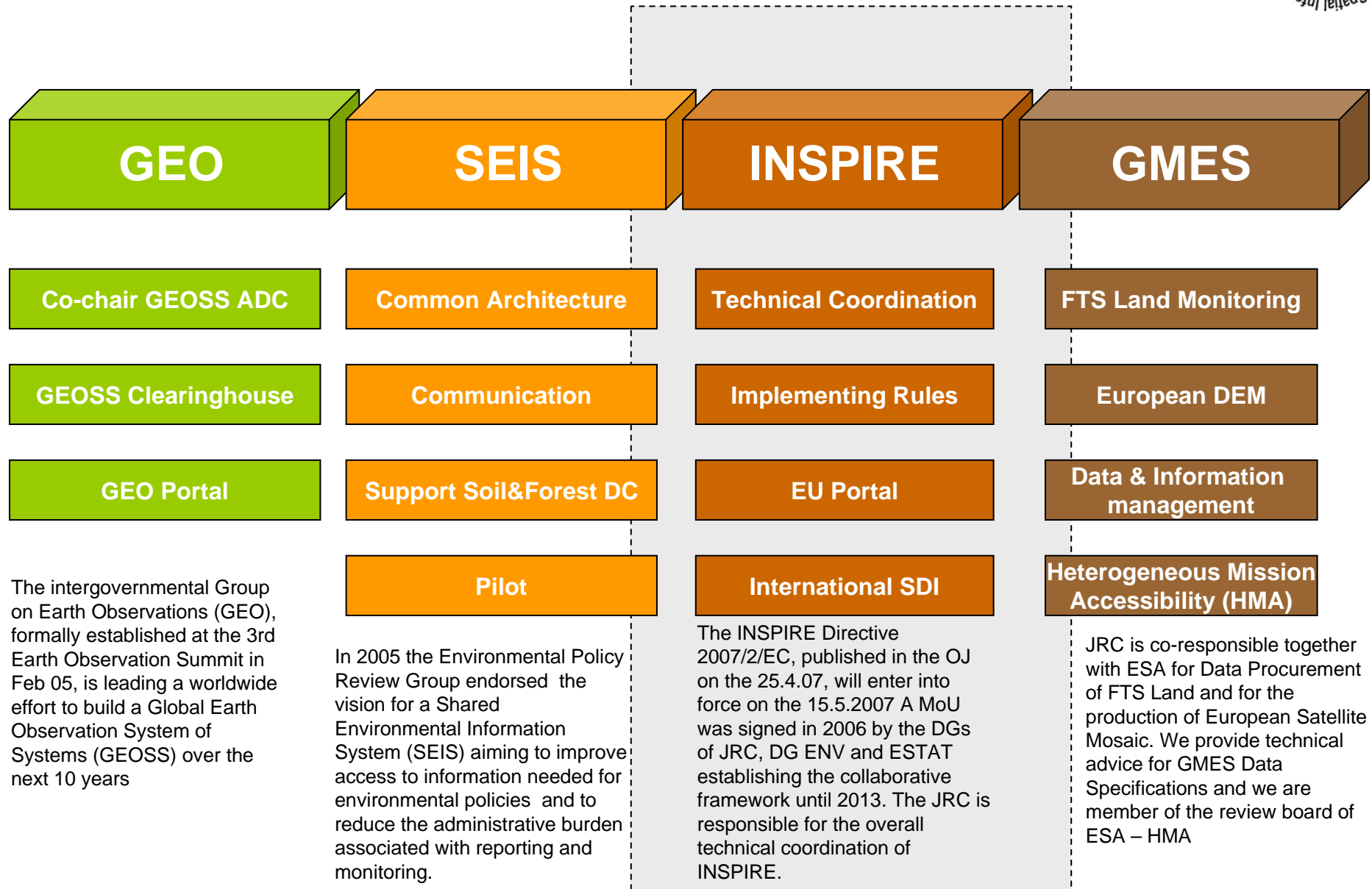
Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.





Scientific support to EU policies

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Objective of this presentation

- Explain what INSPIRE is
- Focus on data specification, and in particular on aspects related to land-use



Outline

- INSPIRE Directive
- INSPIRE Data Specifications
 - Process
 - Aspects related to land-use
- Next steps



INSPIRE Directive

- INSPIRE lays down general rules to establish an infrastructure for spatial information in Europe
 - for the purposes of Community environmental policies and
 - policies or activities which may have an impact on the environment.
- INSPIRE to be based on the infrastructures for spatial information established and operated by the Member States
 - INSPIRE is a distributed infrastructure.
- INSPIRE does not require collection of new spatial data
- INSPIRE does not affect existing Intellectual Property Rights
- Entry into force 15 May 2007





Scope INSPIRE Directive

- Spatial data held by or on behalf of a public authority operating down to the lowest level of government when laws or regulations require their collection or dissemination
- INSPIRE covers 34 Spatial Data Themes laid down in 3 Annexes
 - ***required to successfully build environmental information systems***





INSPIRE Spatial Data Scope

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Annex I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites

Annex II

1. Elevation
2. Land cover
3. Ortho-imagery
4. Geology

Harmonised spatial data specifications more stringent for Annex I and II than for Annex III



INSPIRE Thematic Scope

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Annex III

- | | |
|--|---|
| <ol style="list-style-type: none">1. Statistical units2. Buildings3. Soil4. Land use5. Human health and safety6. Utility and governmental services7. Environmental monitoring facilities8. Production and industrial facilities9. Agricultural and aquaculture facilities10. Population distribution – demography | <ol style="list-style-type: none">11. Area management/restriction /regulation zones & reporting units12. Natural risk zones13. Atmospheric conditions14. Meteorological geographical features15. Oceanographic geographical features16. Sea regions17. Bio-geographical regions18. Habitats and biotopes19. Species distribution20. Energy Resources21. Mineral resources |
|--|---|



INSPIRE Components

- Metadata
- Interoperability of spatial data sets and services
- Network services (discovery, view, download, invoke)
 - Made available through the European geo-portal
- Data and Service sharing (policy)
- Coordination and measures for Monitoring & Reporting

INSPIRE is a Framework Directive

Detailed technical provisions for the issues above will be laid down in Implementing Rules

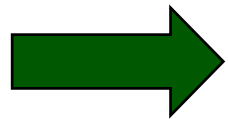
Once adopted, Implementing Rules become European legislative acts and national law in 27 Member States and in some EFTA countries





From Commission proposal to Community Directive implementation

- **Preparatory phase (2004-2006)**
 - Co-decision procedure
 - Start of preparation of Implementing Rules
- **Transposition phase (2007-2009)**
 - Directive entered into force **15 May 2007**
 - INSPIRE Committee starts its activities **26 June 2007**
 - Continuation of preparation of Implementing Rules
 - Transposition into national legislation
 - Adoption of Implementing Rules by Comitology
- **Implementation phase (2009-2013)**
 - Implementation and monitoring of measures
 - Continuation of preparation of Implementing Rules
 - Adoption of Implementing Rules by Comitology





Excerpt from Roadmap related to data specifications

Adoption

Milestone date	Article	Description
2007-05-15		<i>Entry into force of INSPIRE Directive</i>
2009-05-15	9(a)	Adoption of IRs for the interoperability and harmonisation of spatial data sets and services for Annex I spatial data themes
2012-05-15	9(b)	Adoption of the IR s for the interoperability and harmonization of spatial data sets and services for Annex II and III

* = date proposed by Commission



Excerpt from Roadmap related to data specifications

Implementation

Milestone date	Article	Description
2011-05-15	7§3, 9(a)	Newly collected/ restructured Annex I spatial data sets available
2014-05-15	7§3, 9(b)	Newly collected/restructured Annex II/III spatial data sets available
2016-05-15	7§3, 9(a)	Other Annex I spatial data sets available
2019-05-15	7§3, 9(b)	Other Annex II and III spatial data sets available

* = date proposed by Commission



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Interoperability and harmonisation of spatial data sets and services



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- The development of INSPIRE Implementing rules for the interoperability and, where practicable, harmonisation of spatial data sets and services follow a two-step approach:
 - Development of conceptual framework and specification methodology.
 - DS-D 2.3 Definition of Annex Themes and Scope
 - DS-D 2.5 *Generic Conceptual Model (GCM)*,
 - DS-D 2.6 *Methodology for Specification Development*.
 - DS-D 2.7 Guidelines for Encoding
 - Development of data specifications for each data theme based on the
 - conceptual framework
 - common specification development methodology,
 - and on the INSPIRE roadmap

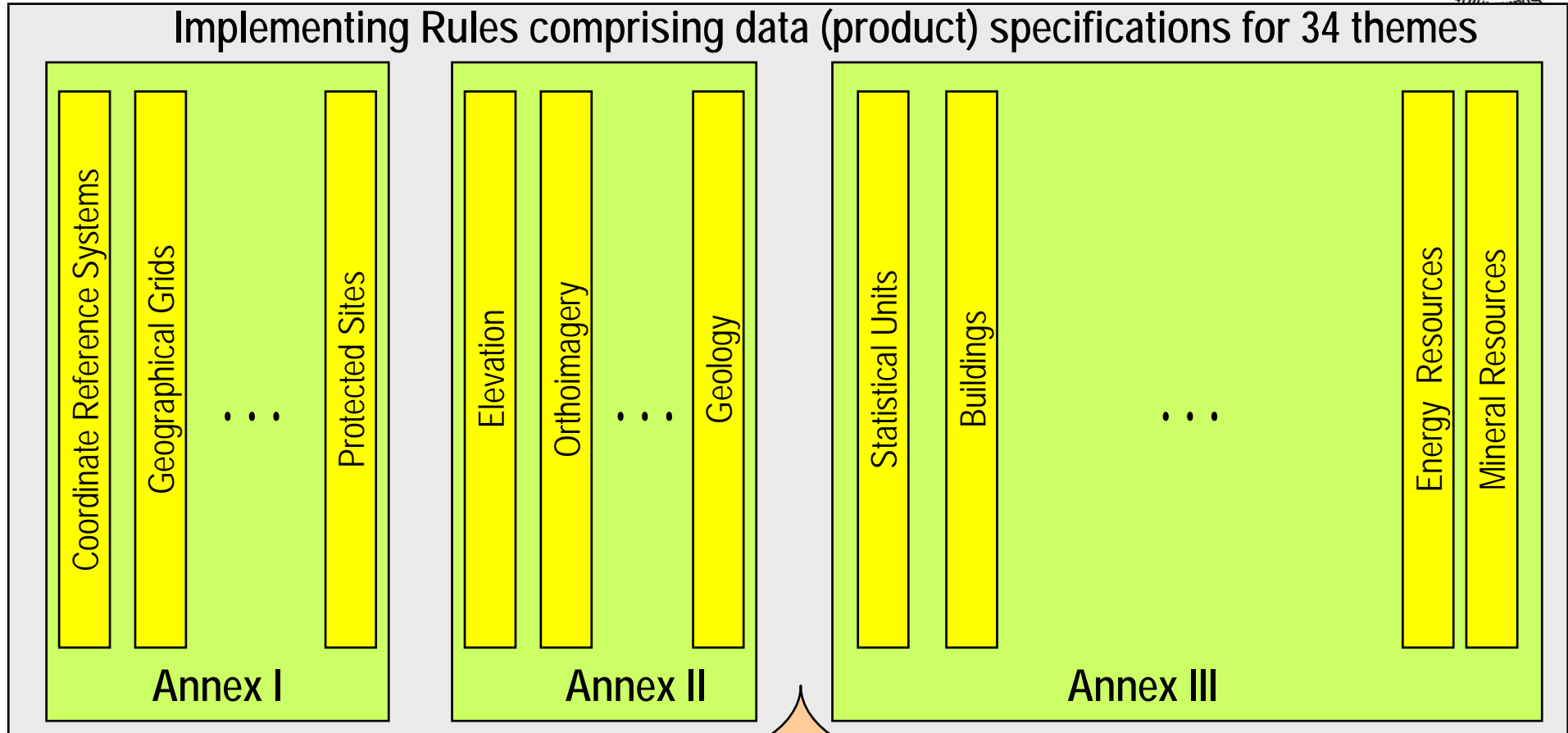


Data Specifications - Approach

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Implementing Rules comprising data (product) specifications for 34 themes



Conceptual Framework





Data specification: progress

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- The Data specification Drafting Team is responsible for the developing and maintaining the conceptual framework
- Data specifications of the theme will be developed by the Thematic Working Groups composed from domain and GIS/IT experts

Specification component	Based on	Status
Definition of the Annex Themes and Scope	INSPIRE position papers Selected reference materials submitted by the SDICs and LMOs	Comment resolution phase. Final document ready in June 2008
Generic conceptual Model	ISO 19101, 19103, 19107, 19108, 19109, 19110, 19111, 19112, 19115, 19123, 19126, 19131, 19136, 19139, ISO/IEC 19501, OGC 06-103r3	Comment resolution phase. Final document to be ready in June 2008
Methodology for specification development	Methodology developed by the RISE project Selected reference materials submitted by the SDICs and LMOs	Comment resolution phase. Final document to be ready in June 2008
Guidelines for encoding	ISO 19118, 19136, 19139 INSPIRE Generic Conceptual Model	First draft version is ready. Waiting for input from the NS DT on the download services
Data specifications	ISO 19131. Materials of the INSPIRE conceptual framework. Relevant reference materials submitted by the SDICs and LMOs.	Activity started in February 2008. Specifications ready in 2009 for Annex I and 2012 for Annex II



Stakeholders' participation 2



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Data specifications are developed by Thematic Working Groups consisting of domain experts proposed by the stakeholders (SDIC/LMO) and a facilitator and editor nominated by the Commission

8 Thematic Working Groups on Annex I data

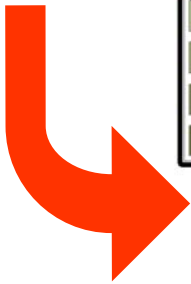
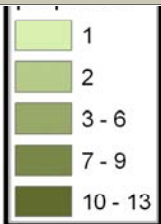
INSPIRE
Infrastructure for Spatial Information in Europe

Call for Expression of Interest for Development of Data Specifications:

- to submit Candidate Specifications (scenario 1)
- to participate in Specification Development (scenario 2)

Title	Call for Expression of Interest for Development of Data Specifications: - to submit Candidate Specifications (scenario 1) - to participate in Specification Development process (scenario 2)
Creator	INSPIRE Consolidation Team
Date	04 September 2007
Subject	INSPIRE - call for Expression of Interest for development Data Specifications
Status	Final
Publisher	JRC-Institute for Environment and Sustainability-SDI Unit, Ispra
Type	Text
Description	INSPIRE, data specification, terms of reference, call for expression of interest
Contributor	Daria Littleberger, Katalin Toth, Vanda Maria de Lima, Eva Pauknerova, Michel Milot, Alessandro Annoni
Format	MS Word 95/2000 (doc)
Source	N/A
Rights	Public
Identifier	Call_scenario_1_2_update200707.doc
Language	En
Relation	1. INSPIRE Work Programme Transposition Phase (2007-2009) http://www.inspire.europa.eu/infrastructure/inspire2007-2009_en.pdf 2. Terms of Reference for developing Implementing Rules laying down Technical Arrangements for Interoperability and Harmonisation of Spatial Databases http://www.inspire.europa.eu/infrastructure/inspire2007-2009_en.pdf
Coverage	2007-2012

These are Dublin Core metadata elements. See for more details and examples <http://www.dublincore.org/>





Specification development roadmap

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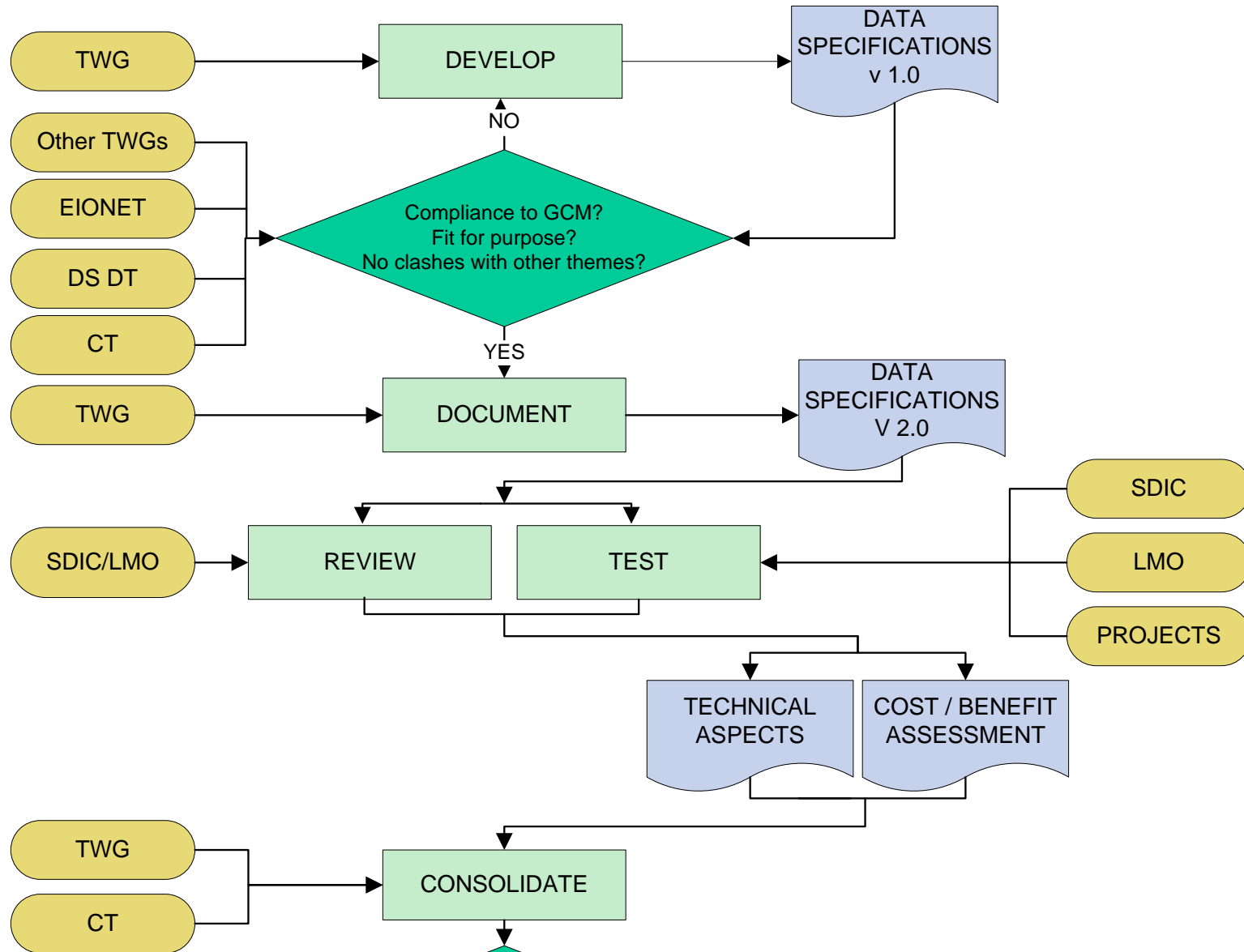


Description	Who	Start	End
Task 1: User requirements and use cases	TWG	2008-03	2008-05
Task 2: Analysis of the relevant reference materials	TWG	2008-02	2008-05
Task 3: "As-is" analysis according to the methodology in D2.6	TWG	2008-02	2008-08
Task 4: Gap analysis according to the methodology in D2.6	TWG	2008-02	2008-08
Task 5: Drafting data specification of Annex I data themes	TWG	2008-05	2009-03
Task 6: Testing of draft data specifications for themes	SDIC, LMO, Projects	2008-10	2009-02
Task 7: Preparation and adoption of IR for the interoperability and harmonisation of spatial data sets and services for Annex I spatial data themes	CT, TWG INSPIRE Committee	2009-02	2009-05



Process of DS-IR development 1

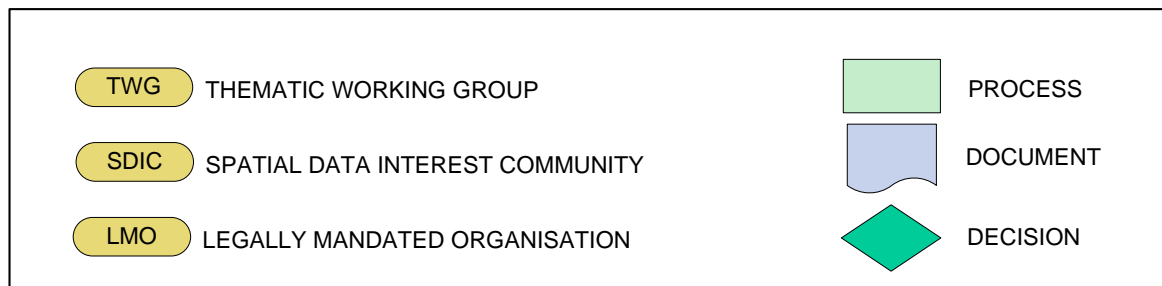
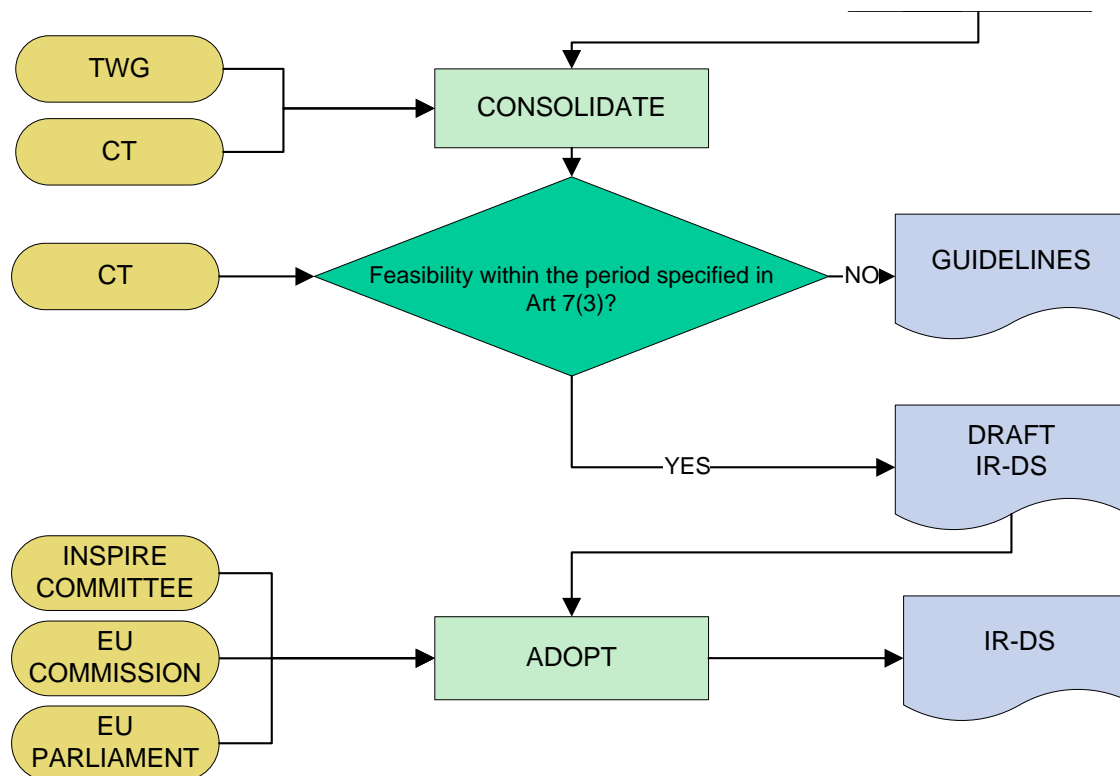
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Process of DS-IR development 2

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Outline

- INSPIRE Directive
- INSPIRE Data Specifications
 - Process
 - Aspects related to land use and land cover
- Next steps and conclusions





INSPIRE Data Specifications – aspects related to land use

■ Definition

- Territory characterised according to its current and future planned functional dimension or socio–economic purpose (e.g. residential, industrial, commercial, agricultural, forestry, recreational).

■ Description

- Land use plans/ land user regulation
 - regulate actual and future use of areas.
 - commonly have significant textual regulations to each area/ land category or specific areas
- Functional land use – according to socio-economic purpose
 - Functional areas within urban or rural areas may be mapped through fieldwork, register information or through modelling using socio-economic input data in a GIS.



INSPIRE Data Specifications – aspects related to land cover

- Definition
 - Land cover data is a physical or biological description of the earth surface. In this way it is different from the land use data (annex III, theme number 5), dedicated to the description of the use of the earth surface.
- Description
 - has to be homogenous and comparable between different location in Europe
 - consistent with LCCS and CORINE
 - includes features such as artificial surfaces, agricultural areas, forests, (semi-)natural areas, wetlands, water bodies.
 - adequate minimum area threshold (“Minimum mapping Unit”).
 - hierarchical nomenclature system, which classes must be defined and kept in time in order to identify land cover changes within time series.



Scope



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- Spatial data held by or on behalf of a public authority
- 34 Spatial Data Themes laid down in 3 Annexes

Annex I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. **Cadastral parcels**
7. **Transport networks**
8. Hydrography
9. **Protected sites**

Annex II

1. Elevation
2. **Land cover**
3. Ortho-imagery
4. **Geology**

In bold: spatial data themes that currently are expected to have a relation to land-use (source: D2.3, 2008)



INSPIRE Thematic Scope

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Annex III

- | | |
|--|--|
| <ol style="list-style-type: none">1. Statistical units2. Buildings3. Soil4. Land use5. Human health and safety6. Utility and governmental services7. Environmental monitoring facilities8. Production and industrial facilities9. Agricultural and aquaculture facilities10. Population distribution – demography | <ol style="list-style-type: none">11. Area management/restriction /regulation zones & reporting units12. Natural risk zones13. Atmospheric conditions14. Meteorological geographical features15. Oceanographic geographical features16. Sea regions17. Bio-geographical regions18. Habitats and biotopes19. Species distribution20. Energy Resources21. Mineral resources |
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Next steps and conclusions

- Thematic Working Groups
 - Work on Annex I data themes has started
 - Annex II and III will start end of the year/beginning 2009



Next steps and conclusions

- Highest involvement of key stakeholders through the Spatial Data Interest Community (SDIC) and Legally Mandated Organisations (LMO) concepts

- Are you involved in a network representing producers, transformers and users of spatial data that falls within the scope of INSPIRE?
 - Register as a Spatial Data Interest Community!

- Has your organisation a legal mandate for one or more aspects of INSPIRE?
 - Register as a Legally Mandated Organisation!

- Keep informed
- Review deliverables from the Drafting Teams and the Thematic Working Groups
- Propose experts
- Submit reference material
- Testing of draft specifications

<http://www.ec-gis.org/inspire/>



inspire-info@jrc.cec.eu.int

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Thank you for your attention !



**.....to know more come to the 2nd INSPIRE Conference,
Maribur, Slovenia, 23-25 June 2008!!**