



INSPIRE and Geostatistics

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Bringing data together through a Spatial Data Infrastructure



Like a road infrastructure makes it possible to connect different sites, a spatial data infrastructure makes it possible to connect data located at different sources



Data easily discoverable and accessible to users



Easier development of new applications and services

Components

Institutional framework	Technical standards
Fundamental data sets	Information Services



INSPIRE Directive

General Provisions



- 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 does not require collection of new spatial data
- INSPIRE does not affect existing Intellectual Property Rights



INSPIRE Components



- Metadata
- Harmonisation and interoperability of spatial data sets and services
- Network services (discovery, view, download, transform, middleware)
- 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 (IR)

*IRs will be submitted to the Committee (comitology)
Once decided, IRs will be published as a Regulation*



INSPIRE Spatial Data Scope

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
- Ortho-imagery
- Geology

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



INSPIRE Thematic Scope



Annex III

- Statistical units
- Buildings
- Soil
- Land use
- Human health and safety
- Utility and governmental services
- 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



INSPIRE Directive

A few definitions from Art. 3



- **‘infrastructure for spatial information’** means metadata, spatial data sets and spatial data services; network services and technologies; agreements on sharing, access and use; and coordination and monitoring mechanisms, processes and procedures, established, operated or made available in accordance with this Directive;
- **‘spatial data’** means any data with a direct or indirect reference to a specific location or geographical area;
- **‘spatial data set’** means an identifiable collection of spatial data;



II Interoperability of spatial data sets and services



Implementing Rules shall be adopted for interoperability and where practical for harmonisation of spatial data sets and services

- Harmonised data specifications
 - Annex I, II, III:
 - definition and classification of spatial objects
 - geo-referencing
 - Annex I, II:
 - common system of unique identifiers for spatial objects;
 - relationship between spatial objects;
 - key attributes and corresponding multilingual thesauri;
 - how to exchange the temporal dimension of the data;
 - how to exchange updates of the data.
- *public authorities and 3rd parties shall have access to these specifications at conditions not restricting their use*
- *User requirements, existing standards, and cost-benefit considerations to be taken into account in developing the IRs*
- *Cross-border issues shall be agreed on*



From Commission proposal to Community Directive implementation



- Preparatory phase (2004-2006)
 - *Co-decision procedure*
 - Preparation of Implementing Rules 2005 – 2008 ...
- Transposition phase (2007-2008)
 - 15 May 2007: Directive entered into force
 - Transposition into national legislation
 - 26 June 2007: INSPIRE Committee starts its activities
 - Adoption of Implementation Rules by Comitology
- Implementation phase (2009-2013)
 - implementation and monitoring of measures





INSPIRE Roadmap (1/4)



Article		Mile-stone	Description
	2007	X	Entry into force of INSPIRE Directive
22§2	2007	X+ 3m	Establishment of the INSPIRE Committee
5§4 16(a) <i>16(b)</i>	2008	X + 1y	Adoption of IRs for the creation and up-dating of the metadata Adoption of IRs for Network Services <i>NS Implementing Rules 1: Adoption of IRs for “upload and discovery” and view services</i> Adoption of IRs for monitoring and reporting Adoption of IRs governing access and rights of use to spatial data sets and services for Community institutions and bodies
<i>21(4)</i> 17(8)			
<i>16(a)</i>	2009	X + 2	<i>NS Implementing Rules 2: Adoption of IRs for download and Transformation Services</i>
9(a)	2009	X + 2y	Adoption of IRs for the interoperability and harmonisation of spatial data sets and services for Annex I spatial data themes
19§2	2009	X + 2y	MS designate a contact point (as early as possible; at latest X+2y = end of transposition phase)

Bold means: explicitly mentioned in the directive, including a timing

Bold + italics: explicitly mentioned but without timing

Italics: proposal for subdivision from what is mentioned in the directive, including a proposed timing



INSPIRE Roadmap (2/4)



Article		Milestone	Description
24§1	2009	X + 2y	Provisions of Directive are brought into force in MS (transposition date)
17§1			<i>Implementation of data sharing framework of spatial data sets and services between public bodies</i>
21§1			<i>Implementation of provisions on monitoring</i>
6(a)	2010	X + 3y	Metadata available for spatial data corresponding to Annex I and Annex II spatial data themes
16(a)	2010	X + 3y	<i>NS Implementing Rules 3: Adoption of IR for invoke “spatial data service” Network Service</i>
	2010	X + 3y	<i>NS Operation 1 : “Upload and Discovery” and View Network services operational</i>
15§2	2010	X + 3y	<i>The EC establishes and runs a geo-portal at Community level</i>
21§2	2010	X + 3y	Member States’ First Report to the Commission. From then onwards MS have to present reports every 3 years



INSPIRE Roadmap (3/4)



Article		Mile-stone	Description
7§3 9(a)	2011	X + 4y (2 + 2)	Newly collected and extensively restructured spatial data sets available in accordance with IRs for interoperability and harmonisation of spatial data sets and services for Annex I spatial data themes
	2011	X + 4y	<i>NS Operation 2 : Download and Transformation services operational</i>
9(b)	2012	X + 5y	Adoption of IRs for the interoperability and harmonisation of spatial data sets and services for Annex II and Annex III spatial data themes
	2012	X + 5y	<i>NS Operation 3 : invoke "Spatial Data service" service operational</i>
6(b)	2013	X + 6y	Metadata available for spatial data corresponding to Annex III spatial data themes
23	2014	X + 7y	Commission's report to the EP and the Council. From then onwards the Commission has to present reports every 6 years
7§3 9(b)	2014	X + 7y (2 + 5)	Newly collected and extensively restructured spatial data sets available in accordance with IRs for interoperability and harmonisation of spatial data sets and services for Annex II and III spatial data themes



INSPIRE Roadmap (4/4)



Article		Mile-stone	Description
7§3 9(a)	2016	X + 9y (7 + 2)	Other spatial data sets available in accordance with IRs for interoperability and harmonisation of spatial data sets and services for Annex I spatial data themes
7§3 9(b)	2019	X +12y (7 + 5)	Other spatial data sets available in accordance with IRs for interoperability and harmonisation of spatial data sets and services for Annex II and III spatial data themes



Implementing INSPIRE

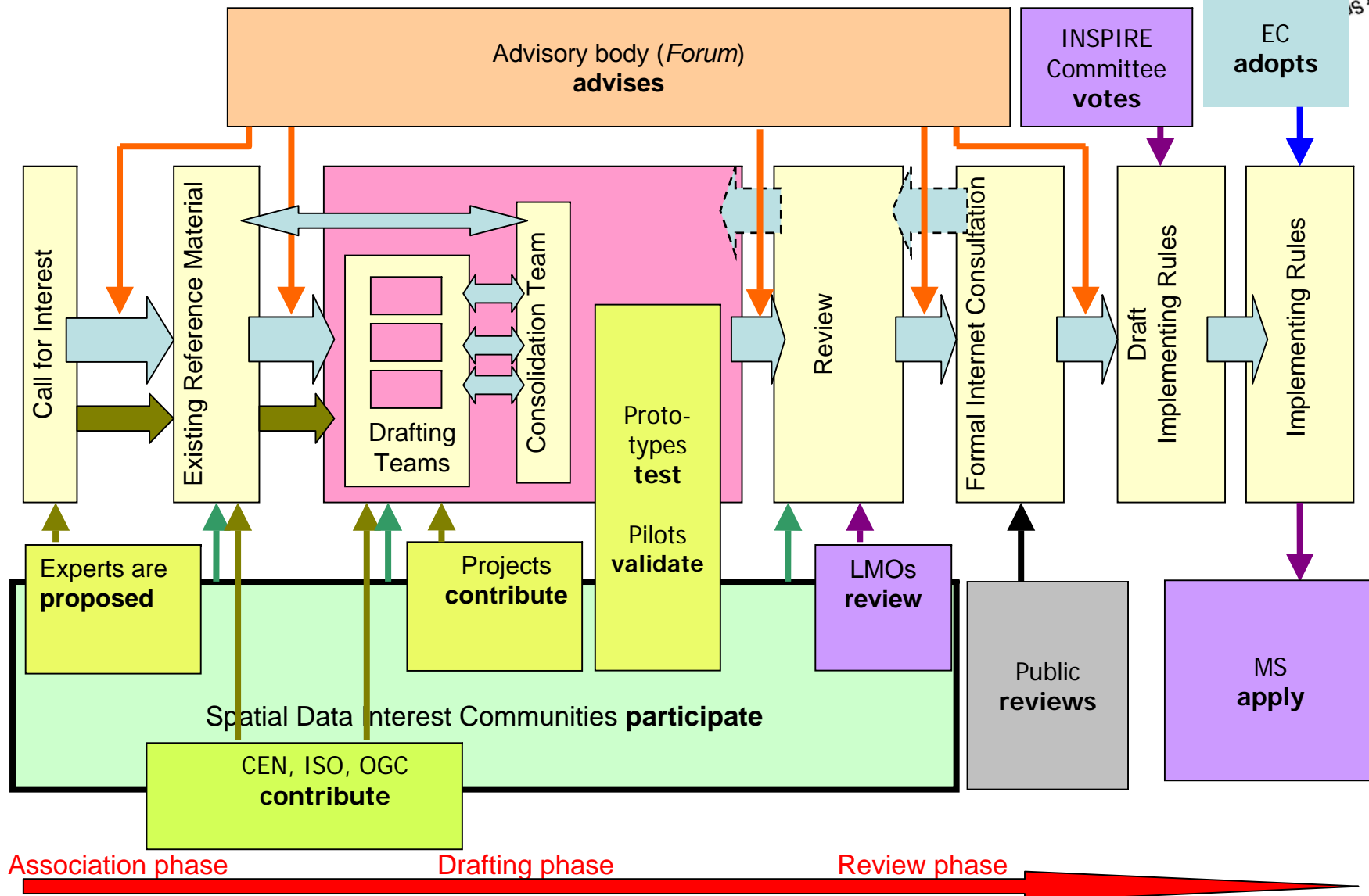


- Needs to consider the broader context of existing national and international initiatives, practices, and standards which could contribute
- Open participatory approach through Spatial Data Interest Communities (SDICs) and of Legally Mandated Organisations (LMOs)
- SDICs bundle the human expertise of **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).



INSPIRE process 2005-2009

Commission Services **co-ordinate**





Roles and responsibilities 1



SDICs

- To collect and describe **user requirements**,
- To submit/develop reference materials
- To allocate experts to the drafting teams,
- To participate in the **review process**,
- To implement pilot projects
- To contribute to cost/benefit analysis
- To contribute to awareness raising and training

LMOs

- To collaborate within the SDICs, or autonomously in providing technical specifications
- To help identify user needs
- To contribute to the analysis of the technical and **operational feasibility** of implementation of proposed draft Implementing Rules
- To provide feedback on the **cost/benefit** consequences of Implementing Rules at Member State level.



Roles and Responsibilities 2



Drafting Teams

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

Projects/prototypes

- To develop representative use-case scenarios
- **To develop/test specifications for IR development**
- To demonstrate the feasibility and advantages of interoperability-based solutions
- To acquire experience in implementing interoperability-based solutions
- To determine cost and benefit of interoperability based solutions on the basis of real cases



Drafting Team Data Specifications: Scope



The development of INSPIRE Implementing Rules for harmonised spatial data follows a two-step approach:

- Development of conceptual framework and specification methodology. This work started in the Preparatory Phase and will be concluded in the Transposition Phase.
- Development of data specifications for each data theme listed in the annexes of the Directive. This work will be carried out based on the conceptual framework and specification methodology, based on the INSPIRE roadmap in the next five years. The work foreseen in the Transposition Phase puts the emphasis on the Annex I spatial data themes.



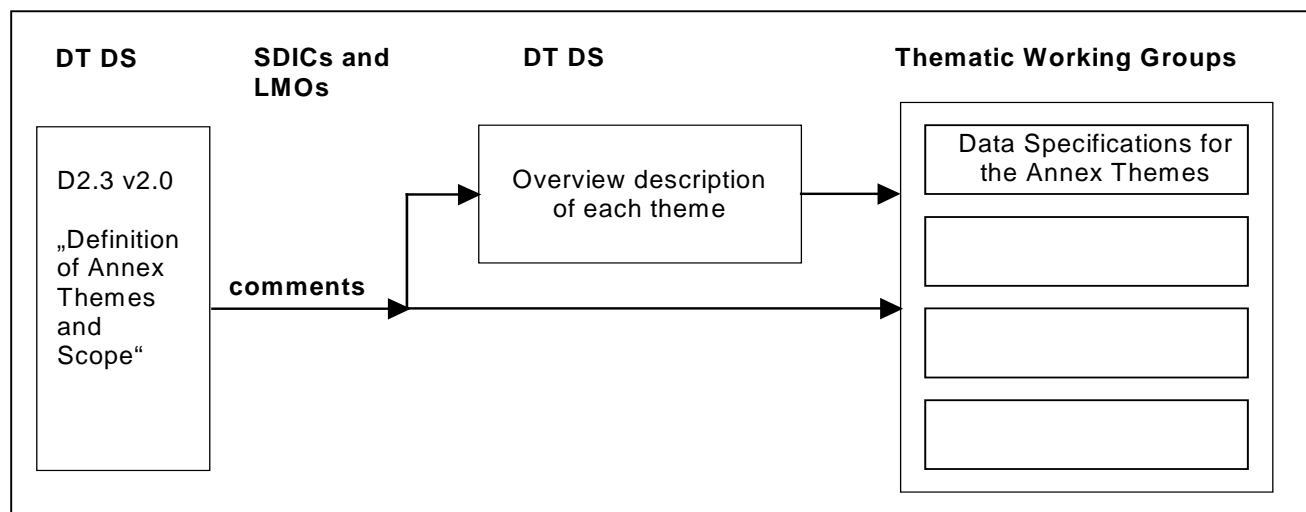
DT-DS deliverable D2.3: Definition of Annex Themes and Scope



Drafting Team "Data Specifications" Definition of Annex Themes and Scope

Title	Drafting Team "Data Specifications" – deliverable D2.3: Definition of Annex Themes and Scope
Creator	Drafting Team "Data Specifications"
Date	2020-04-01
Subject	Definition and scope of the spatial data themes for INSPIRE
Publisher	Drafting Team "Data Specifications"
Type	Text
Description	This document identifies definitions and scope of the spatial data themes for INSPIRE
Contributor	Members of the INSPIRE Drafting Team "Data Specifications"
Format	MS Word doc
Source	Drafting Team "Data Specifications"
Rights	Open Access, comments invited to registered SDICs and LMOs
Identifier	D2_3_v2.0.doc
Language	en
Relation	n/a
Coverage	Project duration

- Identifies definitions and scope of spatial data themes
- Based on existing reference material, especially INSPIRE position papers
- Consultation with SDICs/LMOs closed July 6
- Starting point for the development of Data Specifications





DT-DS deliverable D2.6: Methodology for the development of data specifications

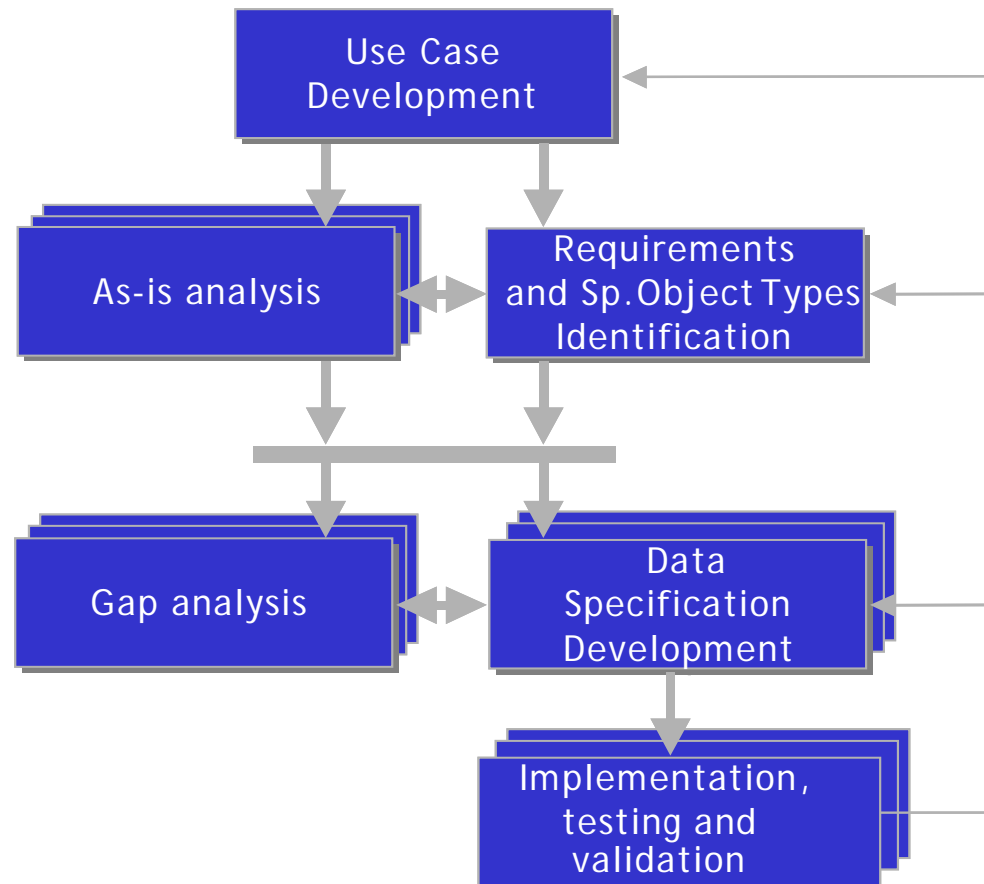


- The process of developing INSPIRE data specifications

 INSPIRE Infrastructure for Spatial Information in Europe	
Drafting Team "Data Specifications" Methodology for the development of data specifications (First Draft)	
Title	Drafting Team "Data Specifications" – deliverable D2.6: Methodology for the development of data specifications (First Draft)
Creator	INSPIRE Drafting Team "Data Specifications"
Date	2007-04-01
Subject	Methodology for the development of data specifications
Publisher	INSPIRE Drafting Team "Data Specifications"
Type	Text
Description	First draft of the methodology for the development of INSPIRE data specifications for the spatial data themes as specified in the Annexes of the INSPIRE Directive
Contributor	Members of the INSPIRE Drafting Team "Data Specifications"
Format	MS Word (doc)
Source	
Rights	Access limited to INSPIRE Drafting Team and Consolidation Team members
Identifier	D2.6_v1.0.doc
Language	En
Revision	1.0
Coverage	Project duration

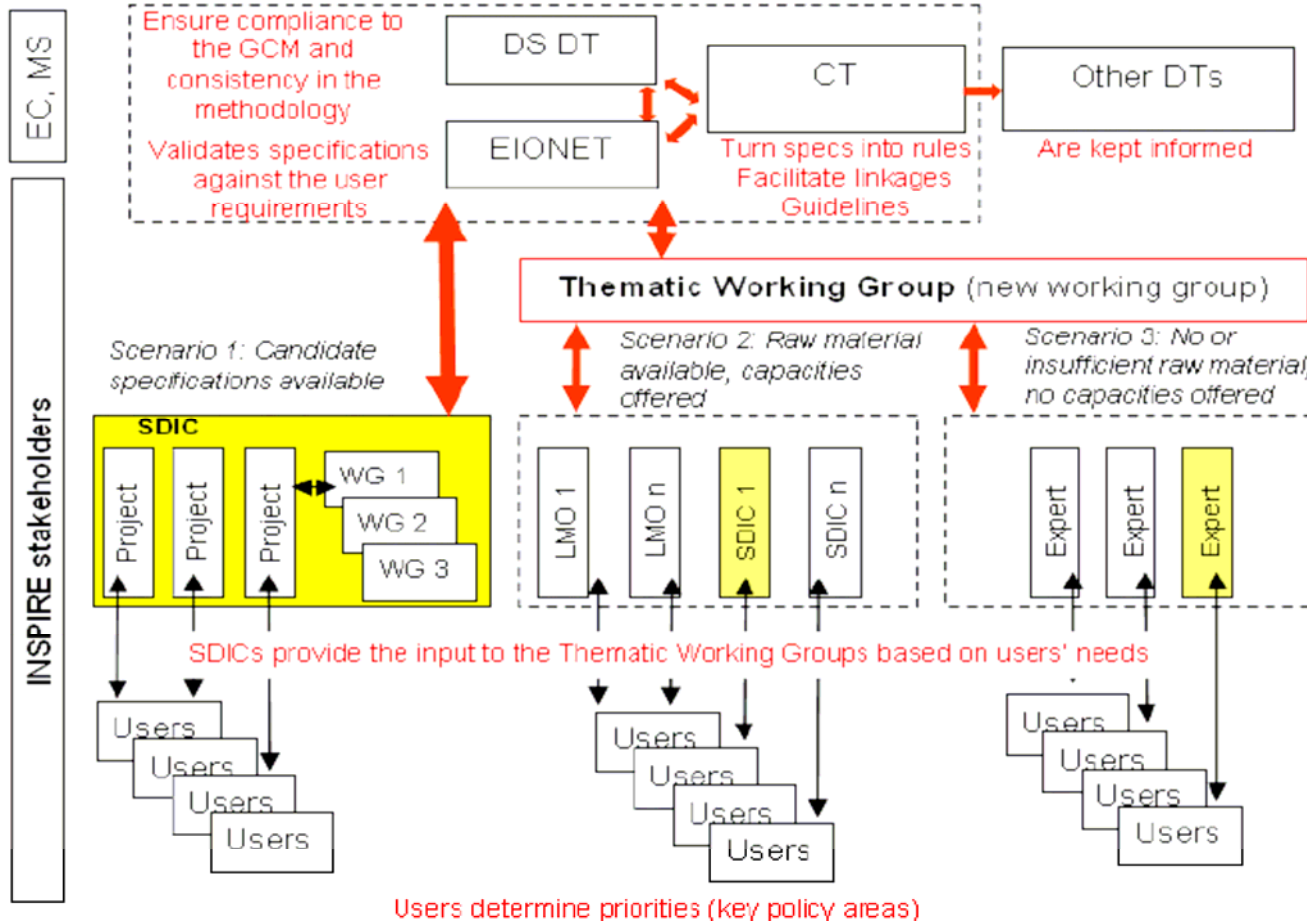
Version history:			
Version number	Date	Modified by	Comments
1.0	2007-11-05	CPC	First draft of the methodology for the development of data specifications
1.1	2007-01-12	ALL	Comments from INSPIRE Consolidation Team
1.2	2007-05-23	CPC, ALL, ECA	Changes to the methodology in the light of discussions in the work programme, draft guidelines on data specifications
1.3	2007-04-06	ALL, DCA, CPC, ALL	Based on discussions in the meeting on data specifications
1.4	2007-04-25	ALL, DCA, CPC	Version for review by CH and other

NOTE
Comments to the document text are highlighted in the style used for this paragraph.





Development of data specifications for each data theme



Requests:

- Call for SDICs/LMOs for participation in data specification development
- Call for candidate specifications
- User requirements survey

Initial set of Thematic Working Groups to start end of 2007



Call to SDICs and LMO for candidate specifications and experts



The published Call for Expression of Interest for development of Data Specifications invites stakeholders:

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

In particular:

- SDICs and LMOs are addressed for the submission of candidate specifications (scenario 1)
- Experts to be proposed by SDICs and LMOs are addressed for the participation in the Thematic Working Groups (scenario 2)



Call to SDICs and LMO for candidate specifications and experts



Why should INSPIRE stakeholders propose candidate specifications and experts as soon as they can?

- When a candidate specification arrives the CT will start the appropriate procedure. Once candidate specifications are retained as draft specifications for the Implementing Rules, the next possibility to contribute will be only the SDIC/LMO review
- In the case of experts who have experience in several themes there is an important advantage since the themes could be grouped. Therefore if an expert is competent in a theme belonging to Annex II and III it would be advisable to declare it already at this stage

Those SDICs and LMOs that already registered in the preparatory phase are invited to update their profiles on the INSPIRE web-site. New participants are equally welcome



Theme descriptions

Annex I



Geographical grid systems

- **Harmonised multi-resolution grid** with a common point of origin and standardised location and size of grid cells

Administrative units

- **Units of administration**, dividing areas where Member States have and/or exercise jurisdictional rights, for local, regional and national governance, separated by administrative boundaries

Addresses

- **Location of properties** based on address identifiers, usually by road name, house number, postal code.



Theme descriptions

Annex III



Statistical units

- **Units for dissemination or use of statistical information.**

Buildings

- **Geographical location of buildings.**

Land use

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



Theme descriptions

Annex III



Human health and safety

- Geographical distribution of dominance of pathologies (allergies, cancers, respiratory diseases, etc.), information indicating the effect on health (biomarkers, decline of fertility, epidemics) or well-being of humans (fatigue, stress, etc.) linked directly (air pollution, chemicals, depletion of the ozone layer, noise, etc.) or indirectly (food, genetically modified organisms, etc.) to the quality of the environment.

Population distribution – demography

- **Geographical distribution of people**, including population characteristics and activity levels, aggregated by grid, region, administrative unit or other analytical unit.



Theme descriptions in D2.3 Chapters



§ Definition

§ Description

§ Scope, use examples

§ Important feature types and attributes

§ Links and overlaps with other themes

§ Reference documents

§ Suggested contributors in further specification
work



Theme descriptions in D2.3

Population distribution - demography



§ Important feature types and attributes:

The definition in the directive specifies kinds of features relevant to demography: The definition includes the term "aggregated". DT anticipates that non-aggregated data about population is excluded. Probably therefore information in this theme does not refer to address level or point based location, e.g. of production activities. The mentioned examples of aggregation are by grid, region, administrative unit or other analytical unit.

- administrative unit, e.g. from the *NUTS5* level
- grid, e.g. 1x1 km, 100x100m
- census districts
- small area statistics "free" regionalisation
- settlement – small settlement, village, block, township, town, city
- physical region/area within settlement
- functional region/area within settlement



Theme descriptions in D2.3

Population distribution - demography



§ Links and overlaps with other themes:

The thematic information in the form of *attributes collections/tables* can be linked to geometry datasets also addressed in other themes, such as **geographical grid systems**, **administrative units and statistical units** (census districts). Other themes may be more indirectly linked to the theme demography, as they can be used as an input parameter or geometry needed in the generation of an aggregated population dataset, such as the themes **address**, **land cover** and **utility and government services**

§ Reference documents:

[...]

Tandem project reports

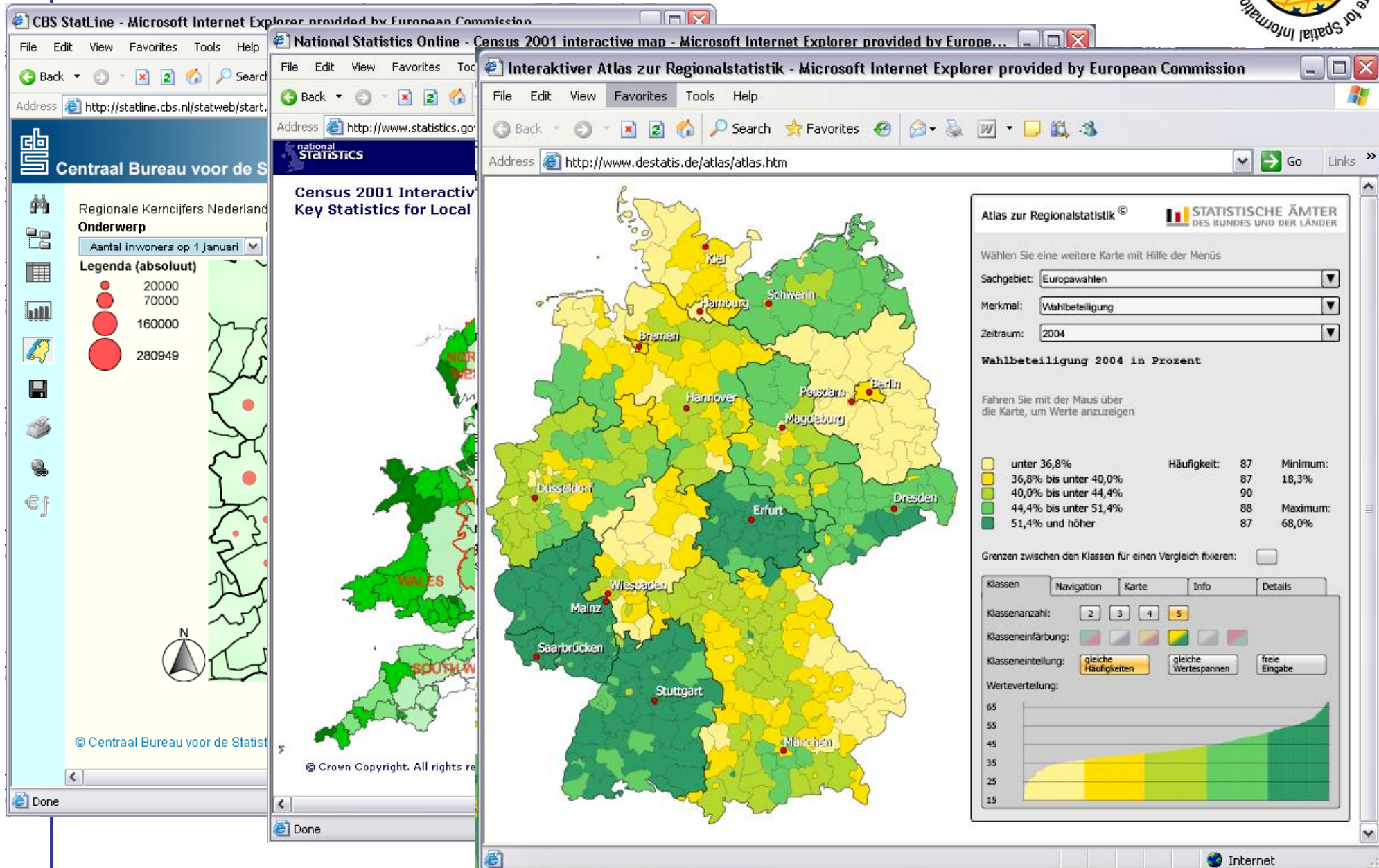
[...]

§ Suggested contributors in further specification work

- Eurostat
- *SDIC Nordic geostatistics*
- GISCO user community



Network services with statistical data





Extension of participation of NSIs



- As a principle:
 - Preference for joining existing SDICs/LMOs
 - Already 1 “umbrella” SDIC: SDI_statistics
 - Statistics Sweden
 - Statistics Finland
 - Statistics Norway
 - Statistics Denmark
 - Alternatively separate registrations
 - 2 separate registrations
 - Statistics Denmark
 - Statistical Office Bratislava
- Current call: call for registration for Thematic Data Specification subgroups
 - Opportunity to co-ordinate the group on statistical units
- Registration of experts (open and continuous process, but...)



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



INSPIRE - Microsoft Internet Explorer provided by European Commission

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WHAT'S NEW
OPEN LETTER
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Registered SDIC/LMOs
SDIC/LMO LOGIN and REGISTRATION

METADATA SURVEY
DATA SPEC SURVEYS

INSPIRE DIRECTIVE
INSPIRE WORKPROGRAMME
STATE of PLAY: Reports

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INSPIRE DIRECTIVE

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. It entered into force on the 15th May 2007.

[Full Text of the directive](#)
The directive is available in the official languages.
[Official Journal of the European Union](#)

INSPIRE Directive: Steps

The INSPIRE Proposal for a Directive was adopted by the Commission in July 2004.

This was a major milestone for the use of Geographical Information in Europe as a contribution to environmental policy and sustainable development. It was the first step in a co-decision procedure that should lead to the formal adoption of the INSPIRE Directive, which then has to be implemented in every EU Member State.

Text adopted by the Commission
[Text adopted by the commission 23/07/2004](#)
[Full Text of the proposal](#) [CS](#) [DA](#) [DE](#) [EL](#) [EN](#) [ES](#) [ET](#) [FI](#) [FR](#) [HU](#) [IT](#) [LV](#) [MT](#) [NL](#) [PL](#) [PT](#) [SK](#) [SL](#) [SV](#)

Text adopted by Parliament
[Text adopted by Parliament 07/06/2005](#)

Council political agreement
[Council political agreement - recitals 07/07/2005](#)
[Council political agreement - articles 24/06/2005](#)
[Common position 23/01/2006](#)

Communication from the Commission
[Communication from the Commission to the European Parliament on the proposed Parliament and Council amendments to INSPIRE 16/02/2006](#)
[Opinion of the Commission on the European Parliament's amendments to the Council's Common Position 13/09/2006](#)

Conciliation Process

The formal conciliation process should begin on the 21st November 2006. It is hoped that an agreement will be reached on that day or very soon thereafter. Intensive informal discussions between the Council of Europe, the European Parliament and the Commission are underway in order to prepare this.

The final directive must be agreed upon and adopted by the Council and EP. The Commission's role at this stage in the negotiations is to facilitate a compromise between the two. Following agreement at political level the text will go through a process of linguistic revision and so we could expect final adoption in spring 2007.

[Text of the agreement reached in conciliation between Parliament and Council.](#)

start

12 Internet Expl... 4 Microsoft Offic... 2 Windows Expl... 5 Microsoft Offic... inspireDataSpecD...

Internet

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