



INSPIRE

Infrastructure for Spatial Information in Europe

INSPIRE Work Programme

Transposition Phase 2007-2009

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Purpose of the document

The purpose of this document is to clarify the process of developing and adopting Implementing Rules for the INSPIRE Directive.

The intended readership of this document is the stakeholders of the INSPIRE Directive, and in particular Spatial Data Interest Communities (SDICs) and Legally Mandated Organisations (LMOs).

The document will be publicly available as a 'non-paper', as it does not represent an official position of the Commission, and as such can not be invoked in the context of legal procedures.

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Executive summary

The INSPIRE Directive 2007/2/EC was published in the Official Journal of the European Union on 25 April 2007, and entered into force on 15 May 2007. INSPIRE lays down general rules for the establishment of an infrastructure for spatial information in Europe, for the purposes of environmental policies and policies or activities which may have a direct or indirect impact on the environment.

INSPIRE should be based on the infrastructures for spatial information that are created by the Member States and that are made compatible with common Implementing Rules and are supplemented with measures at Community level. These measures should ensure that the infrastructures for spatial information created by the Member States are compatible and usable in a Community and transboundary context.

In close collaboration with stakeholders in the Member States and in parallel with the co-decision process of the Directive, the Commission started the drafting of the Implementing Rules in the Preparatory Phase (2005-2006). This is being done in so-called Drafting Teams, which are composed of experts from stakeholder organisations. A number of deliverables have already been produced by the Drafting Teams. This work is done on a voluntary basis, and the Commission wishes to express its appreciation for the efforts that organisations and individuals have put into the process.

The work of the Drafting Teams continues in the Transposition Phase 2007-2009. This document is the work programme of the Commission services, in collaboration with the stakeholders, for the Transposition Phase. It builds on the results of the Preparatory Phase, and its aim is to prepare for the Implementation Phase.

The work programme for the Transposition Phase 2007-2009 differs from the one of the Preparatory Phase on a number of points. These include:

- changes that relate to the INSPIRE Directive itself, like the roadmap and the process of adopting the Implementing Rules as Commission Decisions;
- details regarding organisation and terms of reference will be provided in a separate document (INSPIRE Organisational Structures and Processes 2007-2009); this will include information about European Commission services, Legally Mandated Organisations (LMOs), Spatial Data Interest Communities (SDICs), Drafting Teams (DTs), Thematic Working Groups (TWGs), and the Consolidation Team (CT);
- a calendar of events (the INSPIRE planner) has been added;
- sections of the work programme, like the INSPIRE planner, will be updated regularly.

Abbreviations

CEN	European Committee for Standardization
CT	Consolidation Team
DG	Directorate General
DPAG	Data Policy Assessment of GMES
DS	Data Specifications
DSS	Data and service sharing
DT	Drafting Team
EC	European Commission
EEA	European Environment Agency
EIONET	European Environment Information and Observation Network
EU	European Union
FP6/7	Sixth/seventh framework programme for research
GCM	Generic Conceptual Model
GMES	Global Monitoring for Environment and Security
INSPIRE	Infrastructure for Spatial Information in Europe
IR	Implementing Rule
ISC	Inter-service consultation
ISO	International Organisation for Standardization
IT	Information Technology
JRC	Joint Research Centre
LMO	Legally Mandated Organisations
MD	Metadata
MR	Monitoring and Reporting
MS	Member State
NS	Network Services
OGC	Open Geospatial Consortium
PSI	Public Sector Information
RP	Regulatory process without scrutiny
RPS	Regulatory process with scrutiny
SDI	Spatial Data Infrastructure
SDIC	Spatial Data Interest Community
TC	Technical Committee
TWG	Thematic Working Group
W3C	World Wide Web Consortium
WP	Work Programme

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1 Introduction

Following 3 years of intensive collaboration with Member States experts and stakeholder consultation, the Commission adopted on the 23 of July 2004 a *proposal for a Directive of the European Parliament and of the Council establishing an infrastructure for spatial information in the Community (INSPIRE)*¹.

INSPIRE lays down general rules for the establishment of an infrastructure for spatial information in Europe, for the purposes of environmental policies and policies or activities which may have a direct or indirect impact on the environment.

On 21 November 2006, the European Parliament and the Council reached agreement in conciliation on the final text of the Directive. The Directive has been formally approved by the Council and by the European Parliament on 29 January and 12 February 2007, respectively. INSPIRE was published as *Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007* in the Official Journal of the European Union on 25 April 2007, and entered into force on 15 May 2007.

The development and implementation of INSPIRE follows a programme of work consisting of three phases. These are the Preparatory (2005-2006), the Transposition (2007-2009) and the Implementation (2009-2019) phases. The following subsections describe these phases.

1.1 Preparatory Phase (2005-2006)

INSPIRE requires the Member States to implement various measures. Some of these measures shall be transposed by the Member States, while others require more detail, to be formulated in so-called 'Implementing Rules'. The transposition involves the adoption of national legislation to meet the objectives set by the Directive. The Directive itself gives a timeline for the adoption of the Implementing Rules. In order for the Implementing Rules to be ready in time, the process for their development had to start early. A transparent and participatory procedure was put in place involving stakeholders in the Member States and concerned international organisations.

Hence, in parallel to the Co-Decision Procedure², the Commission initiated actions to prepare draft Implementing Rules, with the stakeholders playing a key role. This Preparatory Phase, which started with the Commission's proposal for INSPIRE, came to an end with the entry into force of the INSPIRE Directive, although a number of activities including the drafting of the Implementing Rules will continue into the Transposition Phase.

1.2 Transposition Phase (2007-2009)

Following adoption by the European Parliament and the Council the INSPIRE Directive entered into force twenty days after its publication in the Official Journal of the European Union on 25 April 2007, which is 15 May 2007. Member States then have a period of two years to bring into force laws, regulations and administrative provisions necessary to comply to the INSPIRE Directive.

At the beginning of this phase, the Commission will put in place the organisation necessary to assure coordination at Community level and shall be assisted for that purpose by relevant organisations, in particular by the European Environment Agency, while appropriate structures and mechanisms will be installed by the Member States, including the point of contact with the Commission. This point of contact shall be responsible for the communication between the Member States and Commission concerning operational implementation issues.

At the same time Member States are encouraged to draw up, for themselves and in the interests of the Community, their own tables illustrating, as far as possible, the correlation between the INSPIRE

¹ COM(2004) 516 final

² The procedure by which the European Parliament and the Council, facilitated by the European Commission, agree on a legislative instrument proposed by the Commission.

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Directive and the transposition measures, and to make them public (INSPIRE Directive, Recital paragraph 30). This is important for the process as this information may point to early adoption and best practices in setting-up national infrastructures.

The development of the draft Implementing Rules will continue in the Transposition Phase. One of the key activities in the Transposition Phase regards the adoption of Implementing Rules following a timetable set by INSPIRE. INSPIRE requires the formal adoption of those Implementing Rules by the Commission following the "Comitology Procedure"³. The regulatory nature of the Implementing Rules requires the Commission to present them to a Regulatory Committee of Member States representatives, referred to as the INSPIRE Committee, which will officially start its activities at the beginning of the Transposition Phase. This INSPIRE Committee plays a central role in the regulatory process. Details about the process are provided in subsection 3.5.

The adopted Implementing Rules shall be implemented by the Member States.

1.3 Implementation Phase (2009-2019)

Once INSPIRE is transposed by the Member States into national legislation, its measures will be implemented and monitored. Co-ordination at Community level by the Commission and at Member State level will be operational and Member States shall report according to the roadmap of INSPIRE as described in section 2.6.

1.4 Changes with respect to WP 2005-2006

This work programme builds upon the *INSPIRE Work Programme Preparatory Phase 2005-2006*. For the work in the Transposition Phase, some important changes were needed. These include:

- Changes that relate to the INSPIRE Directive itself, like the roadmap and the process of adopting the Implementing Rules as Commission Decision.
- A calendar of events (the INSPIRE planner) is added to make planning easier for stakeholders.
- Parts of this work programme will be regularly updated, like the INSPIRE planner, and will be made available on the INSPIRE website as soon as they are updated.
- Further elaboration of processes and procedures, in particular with regard to the drafting of the Implementing Rules for data specifications.

1.5 Organisation of this document

Chapter 2 provides a summary of the requirements of the INSPIRE Directive for the Implementing Rules. Chapter 3 gives an overview of the process for the development of the Implementing Rules, and includes a summary of the actors. Chapter 4 addresses the action plan for the period 2007-2009. Finally, chapter 5 contains a calendar of events related to the Implementing Rule development process.

³ Council Decision (1999/468/EC) Official Journal L 184/23, 17.7.1999, "laying down the procedures for the exercise of implementing powers conferred on the Commission".

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2 Requirements of the INSPIRE Directive

The aim of this chapter is to summarize the requirements for Implementing Rules based on the final text of the Directive. The following subsections address these requirements for metadata, network services, data specifications, data and service sharing, and monitoring and reporting. The roadmap at the end of the chapter summarises the deadlines associated to the development and implementation of the Implementing Rules.

2.1 Metadata

Member States shall create metadata and keep them up to date

- Metadata shall include:
 - conformity with IR on interoperability,
 - conditions for access and use of data sets and services,
 - quality and validity,
 - the public authorities responsible, and
 - limitations on public access.
- An Implementing Rule for metadata shall be adopted within one year after the entry into force of the Directive.
- Once the Implementing Rule for metadata is adopted, metadata must be created:
 - within 2 years for Annex I, II spatial data themes;
 - within 5 years for Annex III spatial data themes.

2.2 Network services

Member States shall operate a network of the following services available to the public for data sets and services for which metadata has been created:

- Discovery services; No charge
- View services; No charge (exceptions)
- Download services;
- Transformation services,
- Services allowing spatial data services to be invoked;

Moreover,

- Member States shall ensure the technical possibility, for public authorities, to link their spatial data sets and services;
- Access to services may be restricted;
- Services shall be available on request to 3rd parties under conditions;
- An INSPIRE Geo-portal at Community level shall be established.

An Implementing Rule shall be adopted for the different types of service according to the INSPIRE Roadmap in section 2.6.

2.3 Data sharing

Member States shall adopt measures for the sharing of data and services between public authorities for public tasks relating to the environment without restrictions occurring at the point of use.

Public authorities may license and/or charge other public authorities and Community institutions provided that:

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- It is compatible with the objective to facilitate sharing between public authorities.
- It is restricted to the minimum necessary to ensure sustained availability and quality of the data and services.

When spatial data or services are provided to Community institutions for reporting obligations under Community law relating to the environment then this will not be subject to charging.

Member States shall provide the institutions and bodies of the Community with access to spatial data sets and services in accordance with harmonised conditions. Implementing Rules governing those conditions shall be adopted according to the INSPIRE Roadmap presented in section 2.6.

2.4 Interoperability of spatial datasets and services

An Implementing Rule shall be adopted for interoperability and where practical for harmonisation of spatial data sets and services.

The Implementing Rule will be adopted within two years after entry into force for data sets corresponding to the data themes in the Annex I to the INSPIRE Directive and within 5 years for those covered in Annex II and III.

- Required for harmonised data specifications are:
 - for Annex I, II, III:
 - definition and classification of spatial objects,
 - geo-referencing;
 - and for 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.
- 3rd parties shall have access to these specifications at conditions not restricting their use;
- Cross-border issues shall be agreed on.

2.5 Monitoring and reporting

Member States shall:

- Monitor the implementation and use of their infrastructures for spatial information, and make the results accessible to the Commission and to the public on a permanent basis.
- Send, no later than 3 years after the entry into force, to the Commission a report including summary descriptions of:
 - Co-ordination between public sector providers and users;
 - Relationship with third parties;
 - Organisation of quality assurance;
 - Contribution by public authorities or third parties;
 - The use of the infrastructure;
 - Data sharing agreements between public authorities;
 - Costs and benefits of implementing the Directive.

An Implementing Rule governing the monitoring process and the reporting obligation shall be adopted within one year after the entry into force of the Directive.

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2.6 Roadmap

The roadmap is available on the INSPIRE site. (http://www.ec-gis.org/inspire/inspire_roadmap.cfm).

The table on the site provides the roadmap for the development and implementation of the Implementing Rules. The first column gives the date of the milestone. The second column indicates the article of the INSPIRE Directive that is relevant for the milestone.

3 Overview of process

The development of the Implementing Rules is the responsibility of the Commission. The Implementing Rules will be adopted as Commission Decisions according to the INSPIRE Roadmap presented in section 2.6.

This chapter provides an overview of the INSPIRE Implementing Rules development process and the adoption procedure.

The following steps are described in more detail:

1. the drafting of the Implementing Rules,
2. the testing of draft Implementing Rules,
3. the consultation with stakeholders,
4. the Commission inter-service consultation,
5. the regulatory processes with and without scrutiny, which will lead to the adoption of an Implementing Rule as a Commission Decision,
6. the evolution of Implementing Rules,
7. the roles of actors involved in summary and
8. the procedural aspects for the development of the implementing rules.

3.1 Drafting of Implementing Rules

What:	Preparation of a draft Implementing Rule based on extensive stakeholder involvement (experts, reference material, projects).
Why:	<p>It is the responsibility of the European Commission to produce draft Implementing Rules (INSPIRE Directive, Recital (33), Art. 7(1)).</p> <p>However, gathering opinions and information is an essential part of the policy-development process, enhancing its transparency and ensuring that the proposed policy is practical and legitimate from the point of view of stakeholders.⁴</p> <p>Such principles are explicit to the INSPIRE Directive (Art. 7(5)), for the Implementing Rule on interoperability of spatial data sets and services, and will apply implicitly for the other Implementing Rules.</p>
How:	Based on reference material provided by the stakeholders and relevant projects, experts, selected and coordinated by the Commission, work in Drafting Teams to prepare draft Implementing Rules.
Who:	<p>Through an internal Memorandum between the Commission Services, the Directorate General Environment, Eurostat and the Directorate General Joint Research Centre (JRC) co-operate for the development of the Implementing Rules.</p> <p>Eurostat is responsible for the development process of the draft Implementing Rule for data and service sharing and for monitoring and reporting.</p> <p>JRC is responsible for the development process of the draft Implementing Rules for metadata, harmonised data specifications, and for network services.</p> <p>Stakeholders in the form of Spatial Data Interest Communities (SDICs) and Legally Mandated Organisations (LMOs) may propose experts, reference material, and projects, and can review deliverables of the Drafting Teams.</p>

⁴ Towards a culture of consultation and dialogue – general principles and minimum standards for consultation of interested parties by the Commission (COM(2002) 704 Final)

	Experts selected by the Consolidation Team participate in the Drafting Teams and, in the case of the development of Implementing Rules for harmonised data specifications, in the Thematic Working Groups (TWGs).
Time required:	See roadmap and chapter on Implementing Rules development.

3.2 Testing of draft Implementing Rules

What:	<p>Relevant user requirements, existing initiatives and international standards for the harmonisation of spatial data sets, as well as feasibility and cost-benefit considerations shall be taken into account in the development of the Implementing Rules.</p> <p>More generally, it may occur during the Implementing Rules development process that testing the proposed draft measures is considered necessary in order to check feasibility, performance etc.</p>
Why:	<p>INSPIRE Directive Art. 7(1)</p> <p>Depending from the needs identified during the Implementing Rules development process</p>
How:	<p>By executing or activating pilots, projects, and studies.</p> <p>The INSPIRE geo-portal is used to test the service specifications and to support the INSPIRE implementing Rules development.</p>
Who:	<p>Under the co-ordination of the European Commission (JRC and Eurostat).</p> <p>SDICs and LMOs may propose and participate in projects.</p>
Time required:	See chapter 5 (Action plan 2007-2009). In a number of instances testing is planned to take place in parallel to the stakeholder consultation.

3.3 Stakeholder consultation

What:	Implementing Rules undergo consultation with stakeholders and/or with the public.
Why:	<p>Protocol (N° 7) on the application of the principles of subsidiarity and proportionality, annexed to the Amsterdam Treaty.</p> <p>COM(2002)704 on "Towards a reinforced culture of consultation and dialogue - General principles and minimum standards for consultation of interested parties by the Commission"</p> <p>The user requirements underlined in Art. 5(4), 7(1), 11(1), and 18 of the INSPIRE Directive.</p>
How:	<p>All draft Implementing Rules will be subject to an internet consultation. The target group of the consultation may vary according to the technical complexity, but will at least include the stakeholders registered at the INSPIRE website, and may include the public in some instances.</p> <p>In addition to and in parallel with the consultation with SDICs and LMOs, informal consultations will take place within the Commission by way of the Commission inter-service Committee on Geographic Information (COGI), and the JRC INSPIRE Network (internal to the JRC).</p>

	For the draft Implementing Rules that undergo a public internet consultation, the consultation will be announced through “ <i>Your Voice in Europe</i> ”.
Who:	Organisation by the European Commission (JRC, Eurostat) Inputs foreseen from SDICs and LMOs (including information about cost / benefits) Public (for selected Implementing Rules)
Time required:	8 calendar weeks for every consultation, plus the time required to process comments (anticipated to be 2-3 months).

3.4 Commission Inter-Service Consultation

What:	Draft Implementing Rules (those revised based on the consultations with stakeholders) are subject to an Inter-Service Consultation (ISC). In this process the Services of the European Commission are able to provide their opinion on the Implementing Rules.
Why:	This step is a Commission requirement, and must be done before the Implementing Rules can be submitted to the Committee, the Member States, or the European Parliament.
How:	Upon the Cabinet's approval to launch the Inter Service Consultation, DG Environment runs the process.
Who:	Services of the European Commission give their opinion.
Time required:	Minimum: Two weeks for the inter-service consultation, and approximately three weeks for accommodating any comments from the respondents.

3.5 Regulatory process with and without scrutiny

What:	The Implementing Rules are subject to the regulatory process before they can be adopted as a Commission Decision.
Why:	The regulatory process is described in the Council Decision of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission (1999/468/EC), amended by Council Decision 2006/512/EC, of 17 July 2006 ⁵ .
How:	There are two types of procedures applicable to the INSPIRE Implementing Rules. These are the regulatory process with Scrutiny (RPS, also referred to as “Art. 5a” of Council Decision 2006/512/EC), and the regulatory process without scrutiny (RP, “Art. 5”). Not all Implementing Rules follow the same path. Implementing Rules for metadata and those for monitoring and reporting follow article 5, whereas Implementing Rules for network services, for harmonised data specifications and for data and service sharing between Member States and EU institutions and bodies are subject to article 5a. Figure 3-1 depicts the flowchart for the regulatory process without scrutiny. Figure 3-2 shows the process for the regulatory process with scrutiny.

⁵ O.J. L 200 p11 22.7.2006

Who (RP):	The European Commission (DG Environment) The INSPIRE Committee Council Parliament (informed)
Who (RPS):	The European Commission (DG Environment) The INSPIRE Committee Council Parliament
Time required:	RP: Minimum 2 months RPS: Minimum 4 months

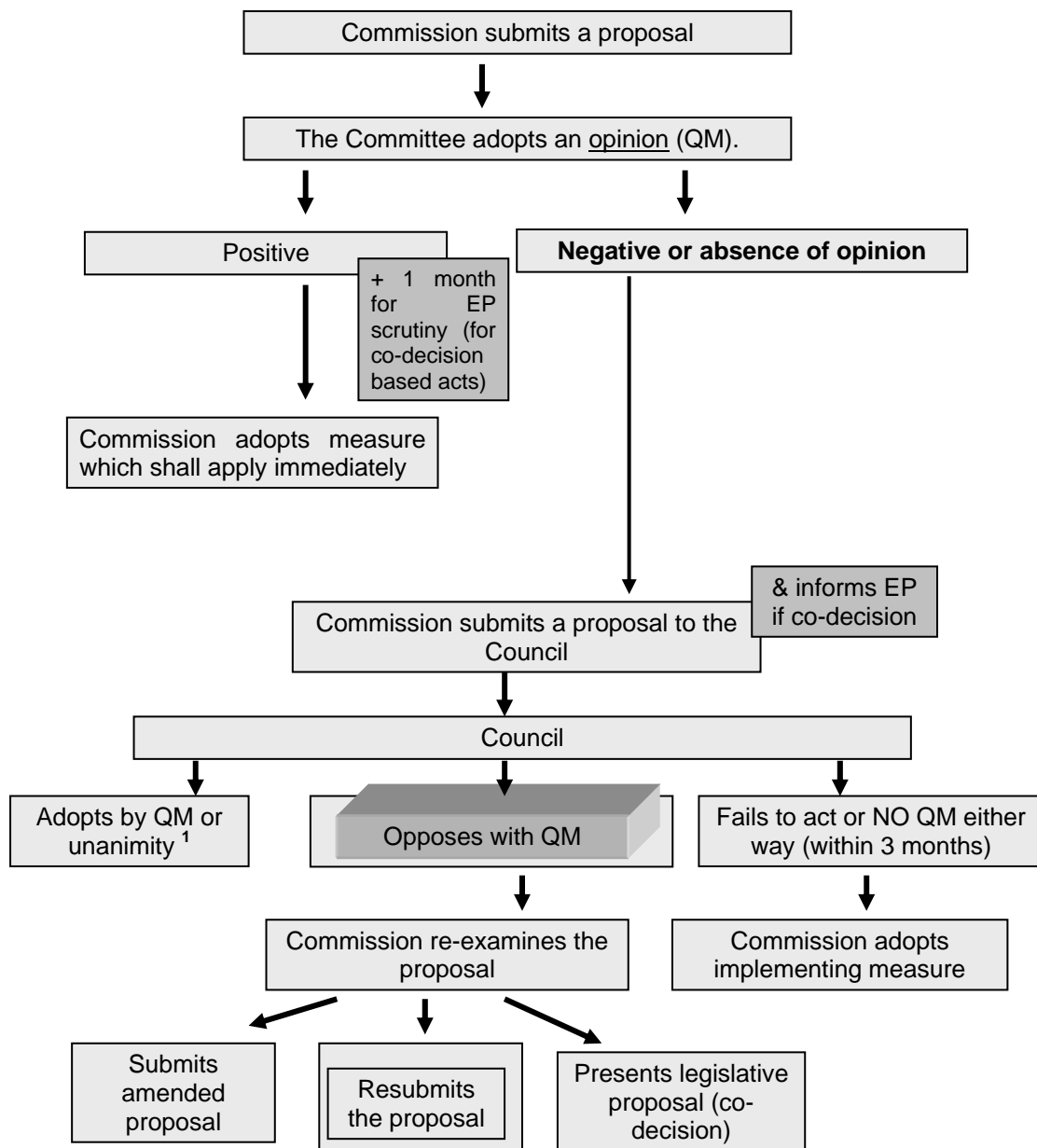


Fig. 3-1. Flowchart of the regulatory process without scrutiny (art. 5).

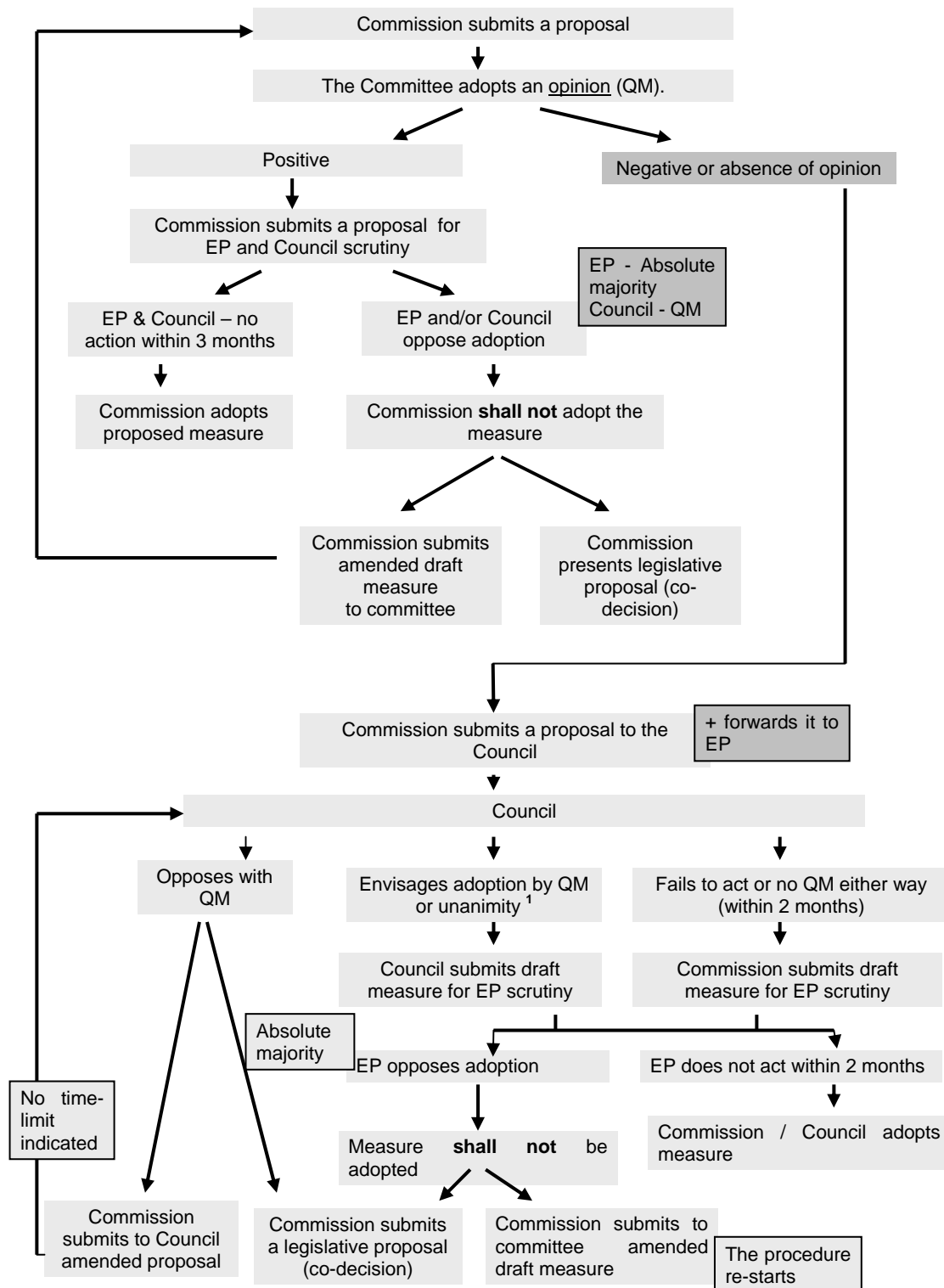


Fig. 3-2. Flowchart of the regulatory procedure with scrutiny.

3.6 Evolution of Implementing Rules

What:	The Implementing Rules may need revision to accommodate evolving requirements.
Why:	In order to benefit from the state of the art and/or in order to address evolving policy needs, it could be appropriate to revise Implementing Rules also taking into account new standards development (INSPIRE Directive Recital (28)).
How:	Implementing Rules may be revised whenever necessary. Technical elements of the Implementing Rules may become the basis for European standards that the European Committee for Standardisation (CEN) will adopt and maintain. Revised versions of technical Implementing Rules can then refer to these European standards.
Who:	Services of the European Commission Stakeholders (SDICs, LMOs) CEN/TC 287 Geographic Information
Time required:	TBD The CEN cycle for producing European standards can be adopted to accommodate any requirements for legal measures.

3.7 Summary of actors and roles

This subsection summarizes the actors and their role in the process described above.

Table 3.1 – summary of actors and roles

Actor	Involved in process step	Role
Eurostat	3.1 Drafting of IRs	Eurostat is responsible for the development of the draft Implementing Rules for monitoring and reporting and the Implementing Rule governing access and rights of use to spatial data sets and services for Community institutions and bodies. Prepare COGI consultation.
	3.2 Testing of draft IRs	Execute or activate pilots, projects, and studies
	3.3 Consultation with stakeholders	Prepare internet consultation
JRC	3.1 Drafting of IRs	JRC is responsible for the development of the draft Implementing Rules for metadata, network services, and interoperability of spatial datasets and services.
	3.2 Testing of draft IRs	Execute or activate pilots, projects, and studies, and develop the INSPIRE geo-portal
	3.3 Consultation with stakeholders	Prepare internet consultation. Participate in informal JRC INSPIRE Network consultation

Actor	Involved in process step	Role
DG Environment	3.4 Commission inter-service consultation	Run the inter-service consultation
	3.5 Regulatory process with (RPS) and without (RP) scrutiny	Follow-up regulatory process
SDIC	3.1 Drafting of IRs	Propose experts, reference material, and projects, and can review deliverables of the Drafting Teams
	3.2 Testing of draft IRs	Propose and participate in pilots, projects, and studies
	3.3 Consultation with stakeholders	Participate in internet consultation
	3.6 Evolution of IRs	Involved in any necessary updates of Implementing Rules.
LMO	3.1 Drafting of IRs	Propose experts, reference material, and projects, and can review deliverables of the Drafting Teams
	3.2 Testing of draft IRs	Propose and participate in pilots, projects, and studies
	3.3 Consultation with stakeholders	Participate in internet consultation, provide information about cost/benefit
	3.6 Evolution of IRs	Involved in any necessary updates of Implementing Rules.
Drafting Teams	3.1 Drafting of IRs	Draft the Implementing Rules
Thematic Working Group	3.1 Drafting of IRs	Draft the harmonised data specifications for one or more INSPIRE data themes.
Public	3.3 Consultation with stakeholders	Participate in internet consultation
European Commission services	3.4 Commission inter-service consultation	Participate in inter-service consultation Participate in informal COGI consultation
INSPIRE Committee	3.5 Regulatory process with (RPS) and without (RP) scrutiny	Provide opinion (vote) on draft Implementing Rules
Council	3.5 Regulatory process with (RPS) and without (RP) scrutiny	In the case of RP - Acts in case of negative or absence of opinion of INSPIRE Committee. In the case of RPS see Fig.3.2
Parliament	3.5 Regulatory process with (RPS) and without (RP) scrutiny	Is kept informed (RP see Fig. 3.1). Can react (RPS see Fig. 3.2)

3.8 Procedural aspects of Implementing Rules development

The flowchart in Fig. 3-3 summarizes the process described in the previous subsections up to the adoption of an Implementing Rule. It provides more details regarding the work carried out in the drafting of the Implementing Rule (cf. subsection 3.1).

The public consultation and the subsequent consolidation of the documentation is a part of the process that will take place for selected Implementing Rules.

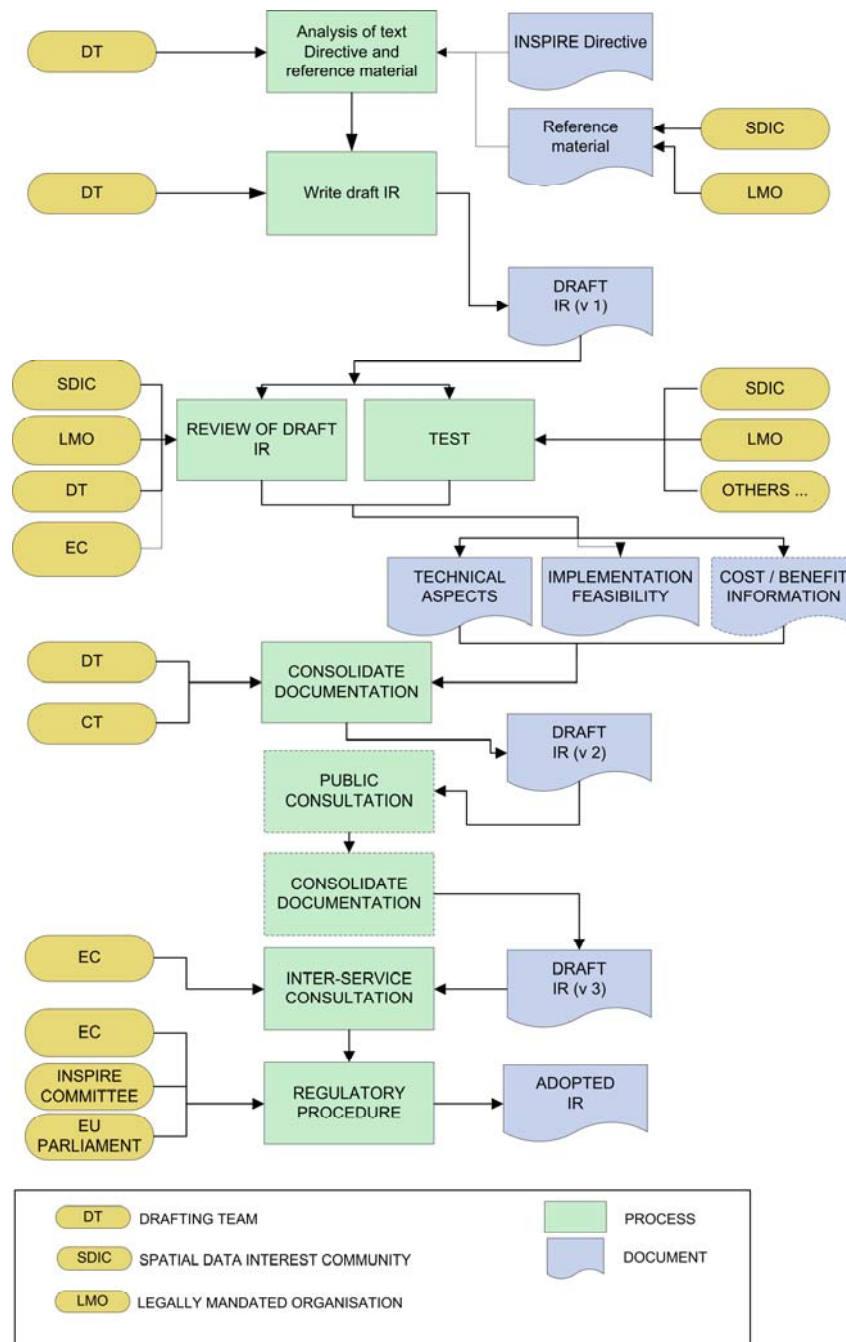


Fig. 3-3. Flowchart of the Implementing Rule drafting process.

4 Action plan 2007-2009

This chapter contains the description of work for the period 2007-2009 of the five INSPIRE Drafting Teams (metadata, harmonised data specifications, network services, data and service sharing, and monitoring and reporting) and of the Services of the European Commission.

Please note that the numbering of the deliverables of the individual drafting teams may have changed with respect to the INSPIRE Work Programme for the Preparatory Phase 2005-2006.

4.1 Metadata

4.1.1 Objectives

INSPIRE addresses two kinds of metadata: metadata for spatial data and metadata for services. The objective of this activity is to draft the Implementing Rules that describe the content and the structure of Metadata for spatial data and services corresponding to the themes in Annexes I, II, and III of the Directive, and to have them approved by the regulatory committee within 1 year from the entry in force of the Directive, i.e. 15 May 2008.

4.1.2 Scope

The scope of the Implementing Rules for Metadata is to detail the INSPIRE legislative requirements for metadata so that these can be implemented consistently across Europe. In doing so due account is taken of conformance with European and international standards, current practices in stakeholder communities and relevant European eGovernment initiatives, as well the need for protecting existing investments and minimizing costs.

4.1.3 Process

The Drafting Team was convened in October 2005, and worked through 2006 to develop draft Implementing Rules for metadata taking into account the following information/projects:

- requirements for metadata for spatial resources (data and services) as expressed in the INSPIRE Directive (see subsection 2.1);
- metadata reference material from the SDICs and LMOs (Deliverable 1.2: Analysis of Reference Documentation [available on the INSPIRE website];
- experience from the JRC Tender: Supply of software for distributed Metadata Catalogue services to support the EU Portal (period: February–May 2006) [available on the INSPIRE website]
- knowledge and reference material from the Drafting Team members;
- exchange of information between the different Drafting Teams and the European Commission.

4.1.4 Milestones 2007-2009

Deliverable	Title	Milestone	Who
MD-D1.3	Draft Implementing Rules for metadata	2007-01	DT
	Launch of SDICs/LMOs consultation of draft IR	2007-02	SDIC/LMO
MD-D1.3	Revised Draft IR	2007-06	CT
	Launch of public consultation on revised draft IR	2007-08	Public
MD-D1.3	Final draft Implementing Rules for metadata	2008-02	CT
	Adoption of IR for the creation and updating of metadata	2008-05	Comitology

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4.2 Interoperability of spatial datasets and services

4.2.1 Two-step approach

The process for developing harmonised data specifications is designed to maximize the re-use of existing requirements and specifications, in order to minimize the burden for Member States' organisations at the time of implementation. The consequence of this is that the process of developing Implementing Rules for interoperability of spatial datasets and services may be perceived as being complex: it involves a large number of stakeholders, with whom many interactions and consultations will take place.

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

1. Development of conceptual framework and specification methodology. This work started in the Preparatory Phase and will be concluded early in the Transposition Phase, and will lead to deliverables DS-D 2.5 *Generic Conceptual Model (GCM)*, and DS-D 2.6 *Methodology for Specification Development*.
2. 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.

Most of the work regarding step 1 was carried out in the Preparatory Phase, and will be completed in 2007. Step 2 comprises the data specification development of the data themes, which will last altogether about five years. The work foreseen in the Transposition Phase puts the emphasis on the Annex I spatial data themes.

Developing coherent specifications for the 34 INSPIRE data themes is challenging both from organisational and content point of view. It requires broad participation of the stakeholders, detailed planning of resources, and a continuous overview of the process in order to achieve timely output with coherent content.

The specification development will follow seven principles:

- I. Specify each data theme in only one designated Implementing rule; an Implementing Rule may contain one or more data specifications;
- II. Ensure compliance with the GCM and overall consistency in specification development process by applying the common, agreed methodology;
- III. Involve the necessary domain expertise for each INSPIRE data theme;
- IV. Analyse and take into account, when appropriate, the reference materials provided by the SDICs and LMOs and the CT;
- V. Document how user requirements and cost-benefit aspects of implementation have affected choices in specifications;
- VI. Use and benefit of existing organisational structures (e.g., European thematic networks like EIONET);
- VII. Guarantee a transparent and open process through consultations with the SDICs and LMOs.

4.2.2 Organisational structure of the theme specification step

The design of harmonised data specifications requires expert knowledge and extensive testing and validation. Such expertise is available among SDICs and LMOs, and using this expertise efficiently for the data product specification requires a comprehensive and pragmatic organisational framework. Such framework should maximise the use of existing structures and data harmonisation initiatives. At the same time, it should allow experts from different thematic communities to work together on data

themes in which they have a common interest, thereby fostering the interoperability across the borders of their community.

The organisational structure that will be used for the development of draft Implementing Rules for a particular data theme depends on the amount of work that existing specifications need in order to fulfil the user requirements and to comply with the GCM. Three scenarios are envisaged, each with its unique organisational model.

These scenarios are characterised by their initial conditions: the selection of which scenario applies for a particular data theme depends primarily on the maturity and degree of uptake of candidate specifications and reference material proposed by the stakeholders (Fig. 4-1).

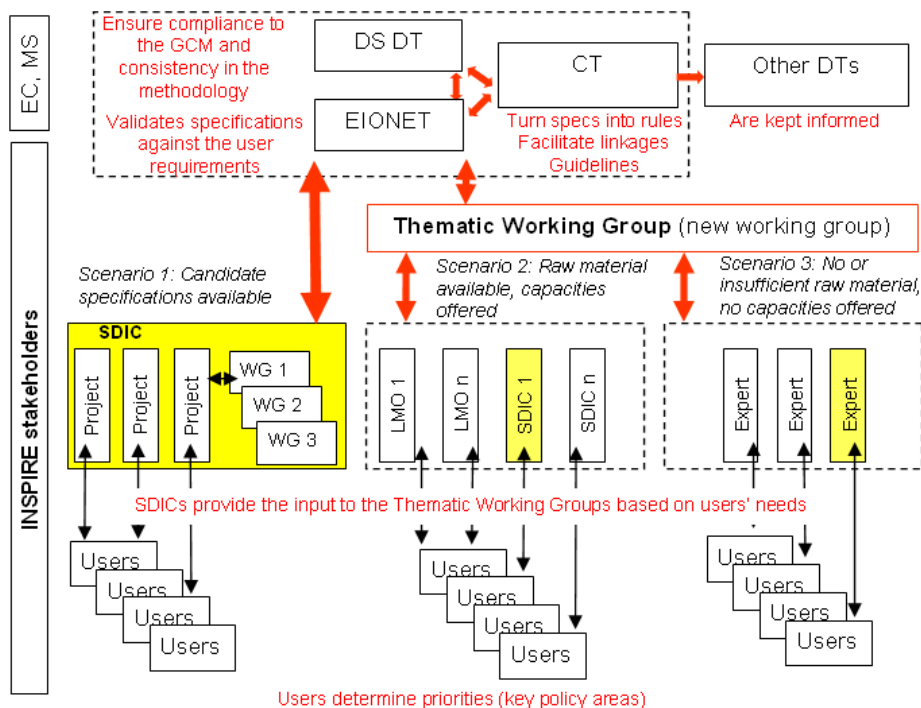


Figure 4-1. Three scenarios of IR development for harmonised data specifications. Key to abbreviations: DS DT: Data Specifications Drafting Team; CT: Consolidation Team; EC: European Commission; GCM: Generic Conceptual Model; MS: Member States.

Scenario 1 applies when a community has already agreed data specifications that have found widespread use. This community, involved in INSPIRE as a SDIC, may propose these specifications as candidate draft INSPIRE Implementing Rules. The SDIC has to demonstrate that the specifications are the result of a consensus at least at the level of the Member States. The specifications shall be verified against the recognised user requirements by the EIONET network and will be checked for compliance with the GCM by the experts of the Data Specification Drafting Team. They will advise the Consolidation Team whether:

- The specification can be considered as draft Implementing Rules “as-is”, followed by a SDIC/LMO consultation.
- Minor adjustments are sufficient to satisfy the recognised user requirements and achieve compliance to the GCM. They can be fixed within the proposing SDIC with potential involvement of a facilitator, assigned by the CT, after which the draft Implementing Rules can undergo a SDIC/LMO consultation.
- Longer discussions and/or involving additional expertise are necessary. The proposal will be channelled in scenario 2.

The draft Implementing Rules shall be documented according to a template in DS-D 2.6 *Methodology for Specification Development*. On the request of the SDIC, the CT will assign an editor responsible for documentation.

Scenario 2 applies when the proposed contributions and the reference (raw) materials are sufficient and appropriate for the given theme, however in this scenario there is a need to streamline the cooperation within the various SDICs and LMOs, to validate the proposed use-cases, and harmonise the specifications. For this purpose a Thematic Working Group (TWG) will be set-up, consisting of experts from approximately 3-5 SDICs or LMOs.

The participating organisations will be selected by the CT, while the experts are proposed by the selected SDICs and LMOs. The TWG will be completed by the facilitator, and when necessary by the editor, designated by the CT. The CT reserves the right to modify the composition of the TWG.

In case of **Scenario 3** the proposed contributions to a data theme are insufficient or completely missing. The Implementing Rules for data themes that fall under this scenario will be developed by a group of experts selected by the CT. The expertise of the TWG has to cover the knowledge of INSPIRE conceptual framework, the field of application and the necessary documentation skills.

Scenario 1 has preference over scenario 2, which has preference over scenario 3. This principle guarantees that the existing initiatives are maximally exploited. A summary of the scenarios is provided in Table 4-I.

Table 4-I. Summary of the three scenarios for data product specification work.

Scenario	Initial conditions	Process
Scenario 1: Adoption procedure of candidate specifications for draft INSPIRE Implementing Rules	Relevant specifications or standards exist in the domain of the data theme, and the relevant thematic community proposes these as candidate data specifications for INSPIRE.	The Data Specifications Drafting Team reviews the candidate specification against user requirements and compliance with the GCM, after which consultation with SDICs and LMOs can start.
Scenario 2: Specification development process shared by the INSPIRE stakeholders	No candidate specifications have emerged for a particular data theme, but reference material is abundant.	This scenario relies on voluntary contributions of the SDICs and LMOs that may offer their expertise in terms of reference material and experts. The process behind this scenario is similar to the one used in the Preparatory Phase.
Scenario 3: Specification development process with involvement of experts	Proposed contributions are insufficient or completely missing	In this case the Commission will ensure that the draft Implementing Rules are prepared by independent domain experts and experts that can apply and use the conceptual framework and the common specification methodology.

4.2.3 Ad-hoc process for data specification development

The candidate Implementing Rules for a selected data theme will be proposed either by a SDIC in scenario 1 or will be developed by a TWG in scenario 2 and 3.

The development process comprises the analysis of the reference material submitted by the SDICs and LMOs, paying special attention to the existing standards and specifications of the organisations established under the international law (Article 7.1) and the user requirements. If reference material is in a language unknown by the members of the TWG the CT will provide assistance in translating/summarising the contents into/in English.

Having completed this preliminary analysis of the reference documentation the TWG will establish the required level (or levels) of details and apply the methodology for specification development (DS-D2.6). In case when user requirements are not explicitly expressed (which may happen especially in scenario 3) the TWGs are in charge to create an appropriate use-case that will be used in the development process as described in DS-D 2.6.

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The specification development process should result in data product specifications according to ISO 19131:2007, where the application schema complies with the INSPIRE Generic Conceptual Model.

The development phase can be skipped if a SDIC proposes candidate specifications according to scenario 1 as the submitted material already meets the requirements both in terms of the theme-specific requirements and the data specification development framework.

The candidate specifications are the subject of an internal review performed by the INSPIRE Data Specification Drafting Team, EIONET, and the CT in order to validate them against the user requirements and check the compliance with the GCM. Based on the importance of the comments received the CT will decide whether the candidate specifications can be adjusted and go to the review by the SDICs and LMOs, or whether additional expertise should be involved for further development of the specifications. In the second case after the reiteration the new specifications have to be checked again by the DS DT, EIONET, and the CT.

The agreed version will be then documented and published for review within the SDICs and LMOs and can at the same time be tested by the existing structures (projects or organisations already in place) or by a new one created for the purpose.

The review and testing will supply valuable information on technical and cost-benefit aspects of implementation, which will further refine the proposed draft. The TWG will be in charge to evaluate the comments and incorporate them in the draft. The CT may decide to convene a comment resolution workshop with participation of the representatives of the TWG, DS DT, CT, user communities, and other representatives in order to reach consensus on difficult issues. If no consensus is reached the CT will decide the way ahead.

No public consultation is foreseen for data specifications. The highly technical character of these Implementing Rules reduces the probability to receive added value from this phase. As the list of SDICs and LMOs is publicly available and the registration remains open all over the specification process, communities will always have the possibility to join an existing SDIC or register on their own right.

After the processing of the comments into the final draft Implementing Rules for a data theme, the CT will organise the final editing (e.g., adding the legal text to the technical specifications), and initiate the next step in the process, the Commission inter-service consultation (cf. subsection 3.4). The flowchart of Implementing Rule drafting for harmonised data specifications is shown in Fig. 4-2.

The data specification process of the 34 INSPIRE data themes is a time consuming and compound process, where in addition to the deadlines set in the Directive logical order and interdependencies of the themes must be equally considered.

At the time of writing this work programme the need for grouping themes together is unknown. This decision can be taken upon the consultation on the deliverable *Definition of Annex Themes and Scope* (DS-D 2.3). With this consultation the DS DT and the CT anticipate to collect feedback from the stakeholders on the theme definitions, use examples, theme overlaps and specification elements. Comments on the generic parts (theme definition, use examples, overlaps with other themes) should be resolved and incorporated in the final version. Comments concerning specification elements (spatial objects, attributes, relationships) will serve as the bases of the work of the TWGs.

Therefore the roadmap includes only the tasks required for the preparation of the data specification work (e.g., GCM, methodology, and the Implementing Rule on data exchange), and the data specification work for Annex I spatial data themes. Included are also tasks related to the set-up of the TWGs. Activities related to the Annex II and III data are not included in this version of the Work Programme 2007-2009.

In case of Annex I the short timeframe calls for an early start of data specification part. Based on the initial input of DS-D2.3, the GCM (DS-D2.5) and the draft specification methodology (DS-D2.6) this work can now begin, also considering that the first subtask is to review relevant reference material, which is independent of DS-D2.3 and DS-D2.5.

In order to save time specification testing (pilot implementation) will be organised parallel to the review of the drafts. For this purpose, an application scenario is selected that requires integration across different themes and data coming from various providers (different Member States, national, regional, local SDI actors). The application scenario will be selected based on proposals of user communities

(SDICs, LMOs, EIONET). The results of the tests / pilot implementation will provide valuable input for final draft Implementing Rule.

Table 4-II describes the activities that are needed for setting-up the TWGs. These activities are aimed at collecting material and to determine the level of participation of the SDICs and LMOs to a particular spatial data theme, and subsequently to set-up the TWGs. The last column ("who") indicates the actors of the activity.

Table 4-II. Set-up of Thematic Working Groups (TWGs).

Activity	Description	Start	End	Who
Call for SDICs/LMOs for participation in data specification development	Draw up a list of SDICs/LMOs able to support the data specifications in terms of expertise and resources	2007-06	2007-09	SDIC, LMO
Call for candidate specifications	Submitting candidate specifications for any spatial data theme (all annexes) is possible in advance, until a specific spatial data theme is addressed by a TWG. In the case of Annex I, the deadline is 2007-09.	2007-06	2007-09	SDIC, LMO
User requirements survey	Complement user requirements with those from all stakeholders using a web-survey with a standard template. This call remains open all over the data specification period; e.g. all requirements will be regarded that are submitted before the specification of the given theme starts.	2007-06	2007-09	SDIC/LMO
Evaluation of candidate specifications	Candidate specifications will be preliminary evaluated against the user requirements and checked for compliance to the GCM	2007-09	2007-11	EIONET, DT, CT
Composition of TWGs		2007-09	2007-11	CT
TWGs start work		2007-11		

4.2.4 Milestones 2007-2009

The milestones for the data theme specification process are grouped following the two-step approach explained in subsection 4.2.1. Table 4-III presents the deliverables and activities required to prepare for the spatial data themes specifications process. Please note that the drafting team proposes to capture the generic aspects of data exchange that are important to all spatial data themes into a separate IR for Data Exchange (DS-D2.7).

Table 4-IV gives an overview of the milestones for the deliverables of the data specifications development for each of the Annex I spatial data themes. The data specifications for a particular annex I spatial data theme are denoted as deliverable DS-D2.8.x, where the x is a placeholder for the number of the spatial data theme in Annex I.

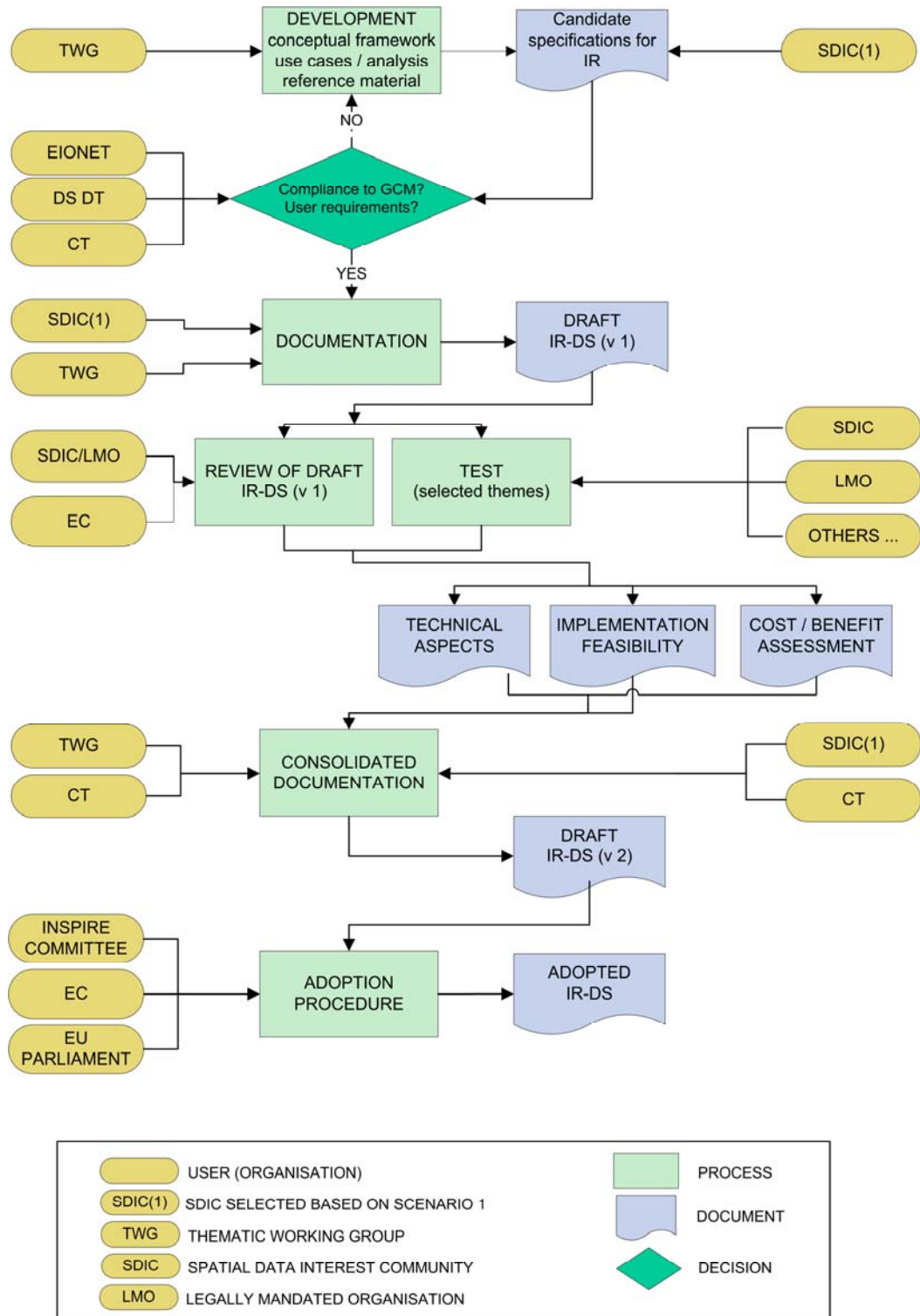


Figure 4-2. Flowchart of development of Implementing Rules for harmonised data specifications.

Table 4-III. Milestones of deliverables and activities required to prepare the spatial data themes specifications process.

Deliverable	Description	Milestone	Who
DS-D2.3	Draft Definition and scope of Annex Themes	2007-05	DT
	Launch of SDIC/LMO consultation on draft Definition and scope of Annex Themes	2007-05	SDIC, LMO
DS-D2.3	Final Definition and scope of Annex Themes	2007-10	CT
DS-D2.5	Draft Generic Conceptual Model (GCM)	2007-05	DT
	Launch of SDIC/LMO consultation of draft GCM	2007-05	CT
	Methodology testing	2007-07	Selected SDICs LMOs, DT, CT
DS-D2.5	Revised draft GCM	2007-10	CT
DS-D2.5	Final GCM	2008-01	CT
DS-D2.6	Draft Methodology for Specification Development	2007-07	DS DT
	Launch of SDIC/LMO consultation on draft Methodology for Specification Development	2007-07	SDIC/LMO
DS-D2.6	Final Methodology for Specification Development	2008-01	CT
DS-D2.7	Draft IR for Data Exchange	2007-12	DT
	Launch of SDIC/LMO consultation on draft IR for Data Exchange	2007-12	SDIC, LMO
DS-D2.7	Final draft IR for data exchange	2008-06	CT
	Adoption of IR for data exchange	2008-11	Comitology

Table 4-IV. Milestones for deliverables of the data specifications development for each of the Annex I spatial data themes.

Deliverable	Description	Milestone	Who
DS-D2.8.x ⁶	Data specification development for Annex I spatial data theme x	2007-11	TWG x
DS-D2.8.x	First draft specification of Annex I spatial data theme x	2008-08	TWG x
	Launch of internal review of first draft specification for Annex I spatial data theme x	2008-08	DT, CT, EIONET
DS-D2.8.x	Draft IR for harmonised data specifications for Annex I spatial data theme x	2008-11	TWG x
DS-D2.8.x	Launch of SDIC/LMO consultation on draft IR for harmonised data specifications for Annex I spatial data theme x	2008-11	SDIC, LMO
	Testing of draft IR for harmonised data specifications for Annex I spatial data theme x	2008-11	Selected SDICs/LMOs, CT, TWG x
DS-D2.8.x	Final draft IR for harmonised data specifications for Annex I spatial data theme x	2009-03	CT
	Adoption of IR for the interoperability and harmonisation of spatial data sets and services for Annex I spatial data theme x	2009-05	Comitology

⁶ The 'x' is a placeholder for the number of the spatial data theme in Annex I.

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4.2.5 Process management

The deadlines of the Implementing Rules set in the Directive for the annexes are the final dates by which they have to be submitted to the INSPIRE Committee. Some themes may be specified earlier. One reason to do so stems from theme grouping. When an Annex II or Annex III theme should be specified together with an Annex I theme because of consistency reasons, the target date of the group will be defined by the more stringent timeframe – by the deadline for Annex I.

Anticipated data specifications can also be initiated by the stakeholders themselves by submitting candidate specifications according to scenario 1. This is possible from the date of the specific call till the date defined in the respective work programme. The candidate specifications will be evaluated by DS DT, EIONET and CT within two months.

Before the data specification phase starts the Commission will publish calls of Expression of Interest for SDICs and LMO. The first call addressed to SDICs is targeted at identifying candidate spatial data specifications fit for the purposes of INSPIRE. Responding the call the SDIC has to specify:

- what INSPIRE data theme is concerned;
- in which community the specification is used;
- what is the geographical extent of use;
- status of the standardisation process (if any);
- and examples of implementation.

The documentation of the specification should be annexed to the application.

The second call is addressed to the SDICs and LMOs to express their interest in participating in the development of data specifications of a given theme according to scenario 2. It is assumed that the organisations responding to this call have expertise also in implementation aspects of the theme either as users, data transformers, or data providers. They are invited to contribute *in-kind* to the specification process in terms of experts' work or testing/running pilot implementations. Responding to the call they can specify:

- which INSPIRE data theme they want to contribute to;
- short description of expertise relevant to the theme;
- type of contribution (providing experts, test facilities, running pilot implementations);
- the amount of contribution (in person-days);
- the names of the proposed experts and their short CV.

Furthermore, the Commission may involve individual experts in the specification process for the roles of facilitators in scenario 2 and 3, the editors in scenario 1, 2, and 3, domain experts for theme cross checking and TWG members under scenario 3.

The foreseen collaboration with the stakeholders creates a need for organising a transparent and easy-to follow process enabling the interested parties to access the results already achieved, identify the ongoing actions and the forthcoming steps. In order to make the parallel data specification development, theme grouping, and the integrated tests traceable and transparent an easy accessible tool is needed. It is planned that the status of data specification in detailed (per theme) breakdown will be given in the INSPIRE web-site.

4.3 Network services

4.3.1 Objectives

The objectives of this task are to draft the Implementing Rules for Network Services and to develop the prototype of the INSPIRE geo-portal.

4.3.2 Scope

This activity will define the functional and non functional requirements of the INSPIRE Network Services to support the following functionalities:

- Discovery services;
- Data view services;
- Download services;
- Transformation services, proposed to be decomposed into coordinates transformation and schema transformation;
- "invoke spatial data services" services;
- technical possibility, for public authorities, to link their spatial data sets and services.

Such services should support Member States in ensuring the technical possibility, for public authorities, to link their spatial data sets and services.

The first task has been to establish a common understanding and definition of functionality of the network services. In addition INSPIRE requires the network services to be accessible through the INSPIRE geo-portal, therefore the INSPIRE geo-portal software architecture will ensure the interoperability with the Member States network. In particular the following issues are addressed:

- Security (access to the service and data transfer) when applicable;,,
- Compliance with services metadata and impact;,,
- Technical architectures and protocols;,,
- End-users' needs.

4.3.3 Process

The Drafting Team is composed of IT experts with experiences in SDI development.

Existing and emerging open IT and geospatial standards from W3C, WS-I, OMG, OGC, ISO, OASIS, and CEN will have an important input to the process.

The JRC has developed a first prototype for the INSPIRE geo-portal that will be used to test the services specifications. The development of the INSPIRE geo-portal will be done in close collaboration with national portal developments and with some selected European thematic services such as those available in the EEA.

In addition the development of the services specifications and the INSPIRE geo-portal prototype is accompanied by pilot implementations proving the applicability of the specifications

4.3.4 Proposed breakdown and milestones

Deliverable	Description	Milestone	Who
NS-D 3.7	Draft IR for Discovery and View Services	2007-06	DT
	Launch of SDIC/LMO consultation on draft IR for Discovery and View Services	2007-06	SDIC/LMO
NS-D 3.7	Final draft IR for Discovery and View Services	2008-01	CT
	Adoption of IR for Discovery and View Services	2008-05	Comitology
NS-D 3.9	Draft IR for Download Services	2007-12	DT
	Launch of SDIC/LMO consultation on draft IR for Download Services	2007-12	SDIC/LMO
NS-D 3.9	Final draft IR for Download Services	2008-06	CT
	Adoption of IR for Download Services	2008-11	Comitology
NS-D 3.10	Draft IR for Coordinates Transformation Services	2007-12	DT
	Launch of SDIC/LMO consultation on draft IR for Coordinates Transformation Services	2007-12	SDIC/LMO
NS-D 3.10	Final draft IR for Coordinates Transformation Services	2008-07	CT
	Adoption of IR for Coordinates Transformation Services	2008-11	Comitology

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More information about the INSPIRE geo-portal is provided in subsection 4.6.

4.3.5 Cross-Reference

- Link with international bodies and National standardisation initiatives (when relevant)
- Link with selected EC and ESA Projects
- Link with INSPIRE pilots
- Link with International, National, Regional and corporate SDIs.

4.4 Data sharing

4.4.1 Objective

The action has the following main objective:

- to develop a draft data and service sharing Implementing Rule governing access and rights of use to spatial data sets and services for Community institutions and bodies available for adoption by 2009 according to the roadmap.

Secondary objectives are:

- to develop guidance and recommendations accompanying the draft data and service sharing Implementing Rule
- to develop recommendations for cross border data and service sharing

4.4.2 Scope

This activity will address and report on issues such as:

- Current types of rights, such as rights of ownership, rights of use, copyright
- Types of access, such as retaining, sharing and trading and restrictions
- Types of use, such as allowed use for the environmental policy cycle, reporting use
- Template agreement for data and service sharing between MS and EU institutions and bodies
- Current best practices and models for data policies

4.4.3 Process

As a starting point the process can build upon the results of the DT-DSS activities of the INSPIRE Preparatory Phase, which includes:

- The analysis of requirements of the Community institutions and bodies;
- The analysis of registered reference documents and on the examination of best practices,
- The preparatory work done by the DT-DSS concerning terminology and high level concepts.

The draft Implementing Rule determines the access and rights of use of the Member States spatial data and services by Community Bodies and Institutions, including bodies established by international agreement to which the Community or Member States are party – in relation to the performance of tasks that may have a direct or indirect impact on the environment. The draft Implementing Rule will focus on the harmonisation of conditions for access and use towards the Community Institutions and Bodies in order to enable EU wide coherence for using these spatial data and services in support of Community environmental and policies or activities which may have an impact on the environment. Next to the actual Implementing Rule, a commentary section will be provided, clarifying the Rule and the rationale behind it, in order to support their implementation by the Member States and their public authorities.

The arrangements to be made in order to meet the sharing obligations within and between Member States are beyond the scope of this Implementing Rule.

Nevertheless, in order to support Member States in meeting the sharing obligation, guidelines will be produced based on perceived 'best practices' in this area. These guidelines will not be binding, but may serve as a "cookbook" for the Member States for making their spatial data and services available.

From 2008 onwards, the draft Implementing Rule will be submitted to SDICs and LMOs for review and feasibility checks. Simultaneously with the review by the external stakeholders, a consultation will be organised within Community Institutions and Bodies in order to match both provider side (MS) with user requirements (EC). A re-iterated version of the IR is envisaged to be elaborated by early 2009.

Finally, it should be analysed to which extent it is worthwhile developing horizontal network services to deal with the sharing arrangements in an automated way (2009).

4.4.4 Proposed breakdown and milestones

Deliverable	Description	Milestone	Who
DSS-D 4.9a	Draft IR governing access and rights of use of spatial data sets and services for Community institutions and bodies, including commentary and clarifications on the reasoning behind the draft IR (<i>internal to the DT and CT</i>)	2007-07	DT
DSS-D 4.10	Recommendations accompanying the draft IR	2008-02	DT
DSS-D 4.9b	Draft IR for governing access and rights of use of spatial data sets and services for Community institutions and bodies	2008-05	DT
	Launch of SDIC/LMO consultation on draft IR	2008-07	SDIC/LMO, DT, CT
DSS-D 4.9c	Revised draft IR for governing access and rights of use of spatial data sets and services for Community institutions and bodies	2008-10	CT
	Public consultation on revised draft IR	2008-12	Public, DT, CT
DSS-D 4.9d	Final draft IR for governing access and rights of use of spatial data sets and services for Community institutions and bodies	2009-03	CT
	Adoption of IR governing the access rights of use to spatial data sets and services for Community institutions and bodies	2009-05	Comitology
DSS-D 4.11	Report on best practices	2009-06	DT, CT

4.4.5 Cross-Reference

- The INSPIRE Data Policy and Legal Issues position paper;
- The PSI Directive and the GMES Data Policy Assessment (DPAG);
- Existing data policies in Member States and agreements of international bodies to which the Community or Member States are party and umbrella organisations;
- Link with Community bodies (agencies at Community level such as EEA, ...);
- Link with European Associations data and pricing policy initiatives;
- Link to e-government.

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4.5 Monitoring and Reporting

4.5.1 Objective

The objective is to draft Implementing Rules for monitoring and reporting by 2008.

4.5.2 Scope

The activity is to continue the development of the mechanisms, methodology and indicators by which:

- a continuous monitoring of the implementation progress and of the usage of the SDI components is measurable with respect to the targets set out by the INSPIRE directive,
- a three-yearly report to the Commission is provided to describe the approach applied by the Member States to translate the requirements set out by INSPIRE into concrete measures and describe the developments of its SDI.
- collected indicators are validated and transferred to the Commission, as well as being made accessible to the public through appropriate information channels.

The monitoring indicators should be derivable as much as possible from the applications and services that are set up, in order to facilitate a continuous monitoring process with marginal overhead.

The three-yearly report to the Commission addresses:

- how public sector providers and users of spatial data sets and services and intermediary bodies are coordinated;
- what are the relationships with third parties;
- how quality assurance is organised;
- the contribution made by public authorities or third parties to the functioning and coordination of the SDI;
- information on the use of the infrastructure for spatial information;
- data-sharing agreements between public authorities;
- figures on tangible costs and benefits in relation to the implementation of INSPIRE.

The activity will further address an implementation schema of the monitoring and reporting process, and provide some additional guidance on best practice examples.

All those elements will be useful for the future evolution of INSPIRE (cf. recital 34).

4.5.3 Process

As a starting point the process can build upon the results of the DT-MR activities of the INSPIRE Preparatory Phase, which includes:

- An analysis of all registered reference documents and of the INSPIRE State of Play⁷ study,
- An INSPIRE list of indicators for monitoring the implementation of the directive.
- Processing of the feedback from other DTs on the indicator list into a new version.

The activity on monitoring addresses:

- the existence, compliance and accessibility of metadata,
- the existence and level of harmonisation of spatial data sets and their mutual consistency,
- the existence, compliance, performance and usage of network services,
- the existence and fitness for purpose of sharing arrangements,

⁷ Spatial Data Infrastructures in Europe: State of Play, updates 2003-2006.

- the cooperation and coordination between stakeholders,
- feasibility and automation aspects of the implementation of monitoring measures

The next steps in the development of the IR will consist of a first test of the feasibility of the proposed approach by calculating the indicators for spatial data and services, but limited to annex I and II data, and only for 4 MS. This test will be performed by the DT-MR team members themselves, thereby supported by some key stakeholders in each of the 4 MS.

Based on the feedback of the internal test, a first draft of the IR for monitoring will be drafted. This version of the IR should then be tested externally for 3 volunteering MS over its full range of the indicators. Finally, the feedback of this test should lead to a first version of the IR which will be eligible for feedback by SDICs and LMOs. With the support of the CT, the DT-MR will then process the feedback, and update the draft IR to a version for public review.

It is envisaged that the DT-MR drafts an IR for reporting which will basically consist of a reporting template in order to both reduce the burden of reporting by the MS and to harmonise the MS input for an EU wide report to be presented to the EP.

It is important to focus on some high level considerations related to costs and benefits of better sharing of spatial data and services across themes within a region or MS, including cross border effects.

4.5.4 Proposed breakdown and milestones

Deliverable	Description	Milestone	Who
MR-D 5.2	Draft list of indicators for Monitoring	2007-06	DT
MR-D 5.4a	First feasibility test (4 MS, annex I & II, internal to the DT)	2007-06	SDIC/LMO (selection), DT, CT
MR-D 5.2	Reviewed list of indicators, including clarifications	2007-08	DT, CT
MR-D 5.5a	Draft IR for Monitoring and Reporting (internal to the DT and CT)	2007-08	DT
MR-D 5.4b	Second feasibility test (3MS, full scope, call for participation SDICs and LMOs)	2007-08	DT, CT
MR-D 5.5b	Draft IR for Monitoring and Reporting	2007-10	DT
	Launch of SDIC/LMO consultation on draft IR for Monitoring and Reporting	2007-10	SDIC/LMO
MR-D 5.5c	Final draft IR for Monitoring and for Reporting	2008-03	CT
	Adoption of IR for Monitoring and Reporting	2008-05	Comitology
MR-D 5.6	Guidance document on monitoring (use of template spreadsheet, automation issues...)	2008-06	DT, CT

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4.5.5 Cross-Reference

- Other environmental monitoring and reporting obligations such as: Directive 91/692/EEC⁸;
- Cost benefit analyses;
- E-government implementation monitoring studies.

4.6 INSPIRE technical architecture and geo-portal development

4.6.1 INSPIRE technical architecture

The relations between IRs and in particular the relationship between the technical components, including additional elements such as Registers, will be documented in an overview of the INSPIRE technical architecture, planned for availability in 2007. It will describe the required elements within the infrastructure, their relationships and the responsible party for drafting the relevant specification. It will also describe the role of the INSPIRE geo-portal in the technical architecture.

4.6.2 Requirements

The INSPIRE geo-portal is an Internet site, or equivalent, providing access to the services requested by the INSPIRE Directive (Art. 3(8)). This makes it Europe's Internet access point to the spatial data sets and services under the scope of the INSPIRE Directive. The INSPIRE geo-portal is established and operated by the Commission (Art. 15(1)).

In order to assist the integration of the national infrastructures into INSPIRE, Member States should provide access to their infrastructures through the INSPIRE geo-portal, besides any access points they themselves decide to operate. As such, there will be no Implementing Rules for the INSPIRE geo-portal.

In particular Member States shall provide access to the services referred to in Article 11(1), namely:

- discovery services - search for spatial data sets and services on the basis of the content of corresponding metadata, and display the metadata content;
- view services - as a minimum, display, navigate, zoom in/out, pan, or overlay spatial data sets and display legend information and any relevant content of metadata;
- download services, enabling copies of complete spatial data sets, or of parts of such sets, to be downloaded and where practicable, accessed directly;
- transformation services, enabling spatial data sets to be transformed with a view to achieving interoperability;
- services allowing spatial data services to be invoked.

The development of a prototype, started by the JRC in the Preparatory Phase, will continue in the Transposition Phase. An important value of the prototype is to demonstrate what can already be achieved by making (public sector) spatial information and services more visible and accessible. The portal is not designed to store or maintain the *data*. These are distributed in many national and thematic servers across Europe. The INSPIRE geo-portal acts as a gateway to the spatial data falling under the thematic scope of INSPIRE (Annexes I,II, III) and services, distributed around Europe, allowing the users to search for and view the spatial data, or, subject to possible access restrictions, download the data on their computers.

⁸ This directive provides for the harmonisation of sector reports on the implementation of 27 directives in the air, water and waste sectors.

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4.6.3 Current Status

The INSPIRE geo-portal is under development at the JRC. The current version includes the following functionalities and components:

- Search facility. This includes simple search (based on keywords), or an expert search that includes topic category, title, keywords, location etc. A gazetteer and a map are included to facilitate location based search.
- Discovery of geographic resources. Currently the geographic resources include data and services.
- Catalogue of all the distributed catalogues.
- Selection of the catalogues to be searched.
- Presentation of the metadata of the resources discovered. Viewing of a related map if a service is associated with the metadata.
- Map Viewing facilities through web mapping services. This also allows search and discovery of services through the catalogue service.
- Metadata editor based on the EN ISO 19115/19119 standards. This is available to authorised users only.

All services are based on standards and specifications from European, International and industry consensus building processes (CEN, ISO, OGC, W3C).

The discovery service in particular provides:

- Real time distributed search and discovery of geographic data and services.
- Harvesting of metadata records through web accessible folders
- Upload of metadata records

The distributed search currently includes metadata catalogues from Member States and European and International Organisations. These currently include the metadata catalogues from Germany (GeoMIS.Bund), France (BRGM) Spain (IDEC-Catalunya Region), European Space Agency (ESA), IGOS (Integrated Global Observing Strategy). The INSPIRE geo-portal catalogue includes also metadata from the European Environment Agency (EEA).

There are various possibilities that the portal may access metadata from metadata catalogues:

- Through the availability of an OGC CSW 2.0 catalogue service, the INSPIRE geo-portal can access the service and perform real time distributed search;
- By making available metadata records in a web accessible folder, the INSPIRE geo-portal may harvest the metadata at scheduled intervals;
- By directly uploading metadata to the INSPIRE geo-portal, subject to access rights.

4.6.4 Current and future developments

Current and future developments of the INSPIRE geo-portal are primarily targeted towards alignment with the INSPIRE Directive and follow the development of the INSPIRE draft Implementing Rules. Thus the following activities are currently under development:

- INSPIRE compliant metadata editor (based on the current status of the IR);
- Search criteria compliant with the INSPIRE Directive and draft IR;
- Development of OGC CSW INSPIRE Application profile.

In addition some preliminary tests are carried out to provide translations to different EU languages of the metadata records where appropriate.

The INSPIRE geo-portal is also used to test the services specifications and provide support to the INSPIRE Implementing Rules Drafting Teams with reference material (feature catalogues, glossary etc). Furthermore the INSPIRE geo-portal also benefits from the results of EU pilot implementations, and European funded projects under FP6 and FP7.

4.6.5 Tentative Breakdown and Milestones

The table below provides an overview of the milestones in relation to the INSPIRE geo-portal development and the INSPIRE Technical Architecture. It is underlined that these are not Implementing Rules, but activities in support of the work of the Drafting Teams.

Deliverable	Description	Milestone	Who
TAP-D1	Draft INSPIRE technical architecture	2007-12	MD DT, NS DT, DS DT, CT
TAP-D2	Metadata editor compliant with draft IR for Metadata	2007-12	
TAP-D3	Discovery services compliant with the draft IR for View and Discovery Services	2007-12	
TAP-D3	Test with multi-lingual translation services	2007-12	
TAP-D2	Metadata editor compliant with adopted IR for Metadata	2008-12	
TAP-D3	Report on the feasibility of applying the IR through horizontal network services	2008-12	DSS DT, NS-DT, CT
TAP-D1	Revised INSPIRE technical architecture	2009-03	
TAP-D4	The EC establishes and runs a geo-portal and Community level	2010-05	CT

The INSPIRE geo-portal may be accessed at <http://eu-geoportal.jrc.it>

5 INSPIRE planner and Gantt charts

5.1 Planner

The table below summarizes events related to the development of the Implementing Rules. The column *category* refers to the relevant sections in this work programme that provide more details related to the event:

- DS: subsection 4.2;
- DSS: subsection 4.4;
- MD: subsection 4.1
- MR: subsection 4.5
- NS: subsection 4.3
- Roadmap, subsection 2.6
- TAP: subsection 4.6

The start and end dates are tentative and may be subject change for some activities. For this reason, the INSPIRE planner will be continuously updated. The latest version will be available on the INSPIRE website.

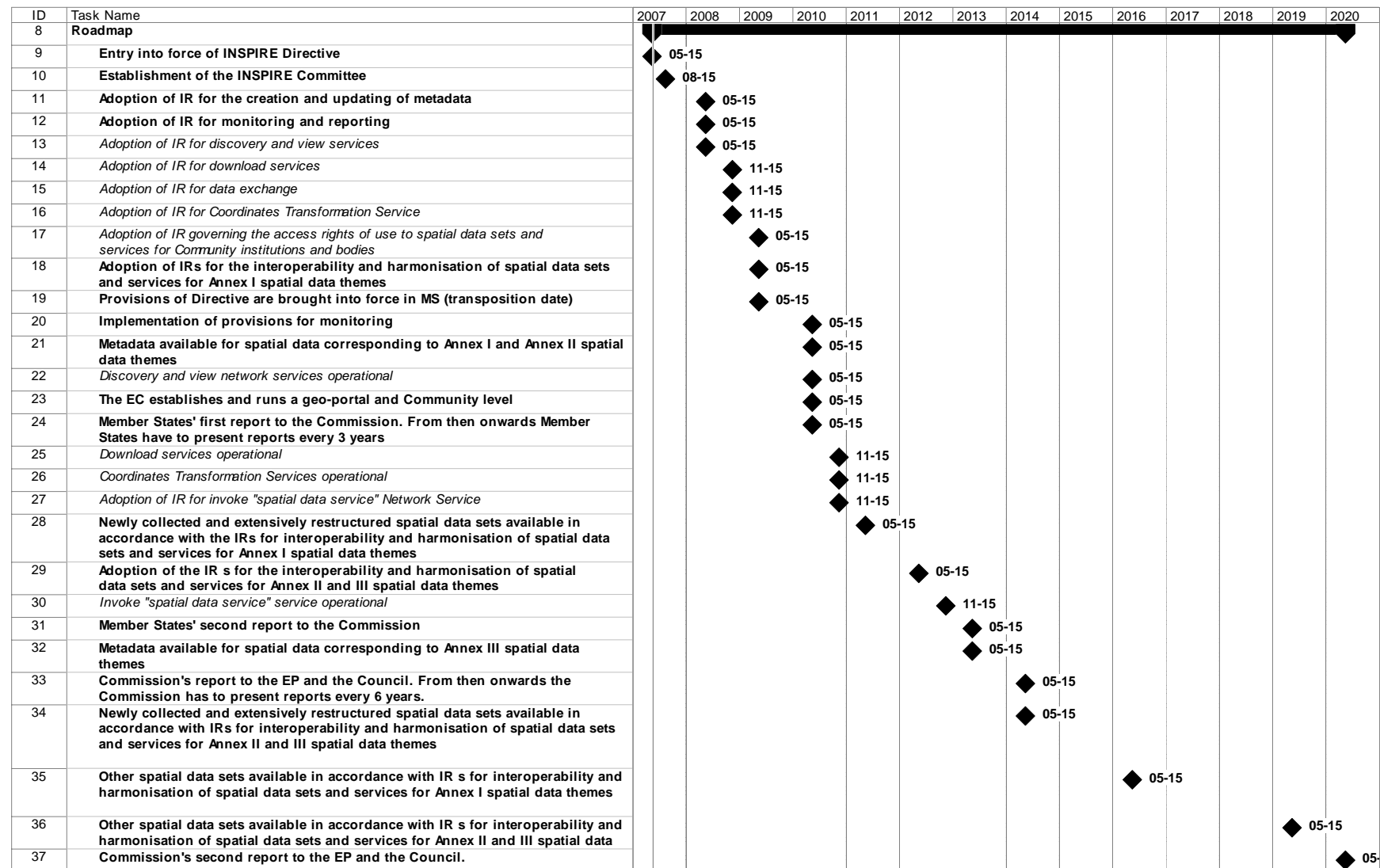
Start date	End date	Event	Category	Actors
2007-05		Draft Generic Conceptual Model (GCM)	DS	DS DT
2007-05	2007-07	SDIC/LMO consultation of draft GCM	DS	SDIC, LMO
2007-05		Draft Definition and scope of Annex Themes	DS	DS DT
2007-05	2007-07	SDIC/LMO consultation on draft Definition and scope of Annex Themes	DS	SDIC, LMO
2007-05		ENTRY INTO FORCE OF INSPIRE DIRECTIVE		
2007-05		Draft IR for Discovery and View Services	NS	NS DT
2007-06	2007-09	SDIC/LMO consultation on draft IR for Discovery and View Services	NS	SDIC/LMO
2007-06	2007-09	Call for candidate specifications for Annex I spatial data themes	DS	SDIC, LMO
2007-06		Call for candidate specifications for Annex II and III spatial data themes	DS	SDIC, LMO
2007-06	2007-09	Call for SDICs/LMOs for participation in data specification development	DS	SDIC, LMO
2007-06		Draft list of indicators for Monitoring	MR	MR DT
2007-06	2007-08	First feasibility test (4 MS, annex I & II, internal to the DT)	MR	Selected SDICs and LMOs, MR DT, CT
2007-07		Draft Methodology for Specification Development	DS	DS DT
2007-07	2007-10	SDIC/LMO consultation on draft Methodology for Specification Development	DS	SDIC/LMO
2007-07	2007-10	Methodology testing	DS	Selected SDICs/LMOs, DS DT, CT
2007-07		Draft IR governing access and rights of use of spatial data sets and services for Community institutions and bodies, including commentary and clarifications on the reasoning behind the draft IR (internal to the DT and CT)	DSS	DSS DT

Start date	End date	Event	Category	Actors
2007-08		Establishment of the INSPIRE Committee	Roadmap	Comitology
2007-08		Draft IR for Monitoring and Reporting (internal to the DT and CT)	MR	MR DT
2007-08		Reviewed list of indicators, including clarifications	MR	MR DT, CT
2007-08	2007-10	Second feasibility test (3MS, full scope, call for participation SDICs and LMOs)	MR	MR DT, CT
2007-09	2007-11	Composition of TWGs	DS	CT
2007-09	2007-11	Evaluation of candidate specifications	DS	EIONET, DS DT, CT
2007-10	2007-12	Launch of public consultation on revised draft IR for Metadata	MD	Public
2007-10		Revised Draft IR for Metadata	MD	CT
2007-10		Revised draft GCM	DS	CT
2007-10	2008-01	Update GCM based on feedback from testing	DS	DS DT, CT
2007-10		Final Definition and scope of Annex Themes	DS	CT
2007-10		Draft IR for Monitoring and Reporting	MR	MR DT
2007-10	2007-12	SDIC/LMO consultation on draft IR for Monitoring and Reporting	MR	SDIC/LMO
2007-11		Final draft Implementing Rules for metadata submitted to regulatory committee	MD	CT
2007-12		Discovery services compliant with the draft IR for View and Discovery Services	TAP	CT
2007-12		Draft INSPIRE technical architecture	TAP	MD DT, NS DT, DS DT, CT
2007-12		Metadata editor compliant with draft IR for Metadata	TAP	CT
2007-12		Test with multi-lingual translation services	TAP	CT
2007-12		Draft IR for Coordinates Transformation Services	NS	NS DT
2007-12		Draft IR for Download Services	NS	NS DT
2007-12	2008-03	SDIC/LMO consultation on draft IR for Coordinates Transformation Services	NS	SDIC/LMO
2007-12	2008-03	SDIC/LMO consultation on draft IR for Download Services	NS	SDIC/LMO
2007-12	2008-03	SDIC/LMO consultation on draft IR for Data Exchange	DS	SDIC, LMO
2008-01	2008-02	User requirements survey	DS	SDIC, LMO
2008-01		Final GCM	DS	CT
2008-01		Final Methodology for Specification Development	DS	CT
2008-01		Final draft IR for Discovery and View Services	NS	CT
2008-02		TWGs start work	DS	TWG
2008-02		Recommendations accompanying the draft IR governing access and rights of use of spatial data sets and services for Community institutions and bodies, including commentary and clarifications on the reasoning behind the draft IR	DSS	DSS DT
2008-03		Final draft IR for Monitoring and for Reporting	MR	CT
2008-05		Draft IR for governing access and rights of use of spatial data sets and services for Community institutions and bodies	DSS	DSS DT
2008-05	2008-07	SDIC/LMO consultation on draft IR	DSS	SDIC/LMO
2008-05		Adoption of IR for monitoring and reporting	Roadmap	

Start date	End date	Event	Category	Actors
2008-05		Adoption of IR for metadata	Roadmap	
2008-05		Adoption of IR for Discovery and View Services	NS	Comitology
2008-05		Adoption of IR for Monitoring and Reporting	MR	Comitology
2008-05		Adoption of IR for the creation and updating of metadata	MD	Comitology
2008-06		Final draft IR for Download Services	NS	CT
2008-06		Final draft IR for data exchange	DS	CT
2008-06		Guidance document on monitoring (use of template spreadsheet, automation issues...)	MR	MR DT, CT
2008-07		Final draft IR for Coordinates Transformation Services	NS	CT
2008-08		First draft specification of Annex I spatial data theme x	DS	TWG x
2008-08	2008-09	Launch of internal review of first draft specification for Annex I spatial data theme x ⁹	DS	DS DT, CT, EIONET
2008-10	2008-12	Public consultation on revised draft IR	DSS	Public
2008-10		Revised draft IR for governing access and rights of use of spatial data sets and services for Community institutions and bodies	DSS	CT
2008-11		Adoption of IR for discovery and view services	Roadmap	
2008-11		Draft IR for harmonised data specifications for Annex I spatial data theme x	DS	TWG x
2008-11	2009-01	SDIC/LMO consultation on draft IR for harmonised data specifications for Annex I spatial data theme x	DS	SDIC, LMO
2008-11	2009-01	Testing of draft IR for hamonised data specifications for Annex I spatial data theme x	DS	Selected SDICs/LMOs, CT, TWG x
2008-11		Adoption of IR for data exchange	Roadmap DS	Comitology
2008-11		Adoption of IR for Coordinates Transformation Services	Roadmap NS	Comitology
2008-11		Adoption of IR for Download Services	Roadmap NS	Comitology
2008-12		Metadata editor compliant with adopted IR for Metadata	TAP	CT
2008-12		Report on the feasibility of applying the IR through horizontal network services	TAP	DSS DT, NS DT, CT

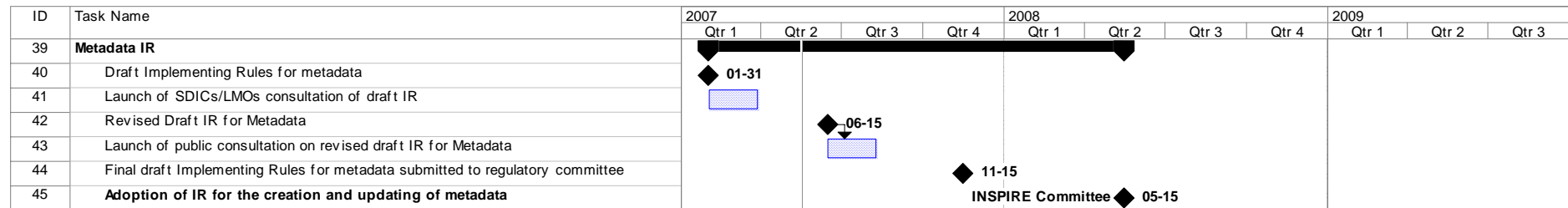
⁹ The 'x' is a placeholder for the number of the spatial data theme in Annex I.

5.2 Gantt chart of INSPIRE roadmap



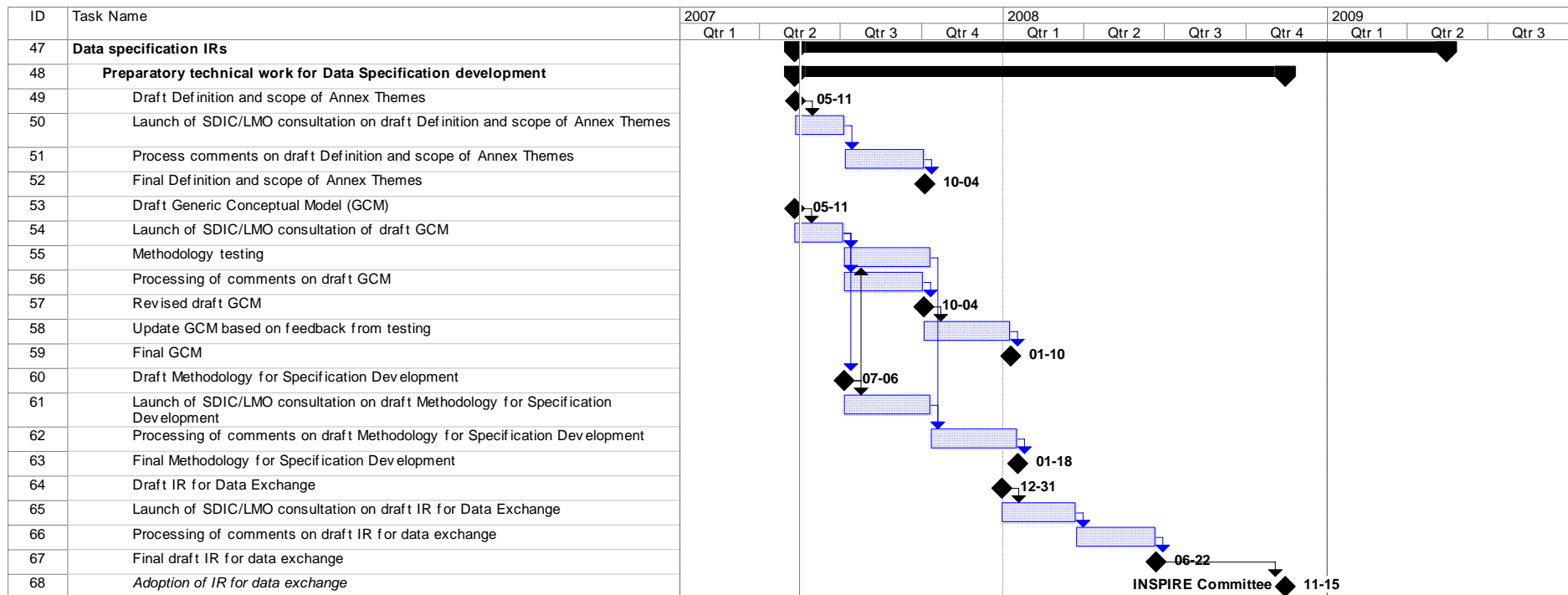
5.3 Gantt chart of work in support of Implementing Rule development

5.3.1 Metadata

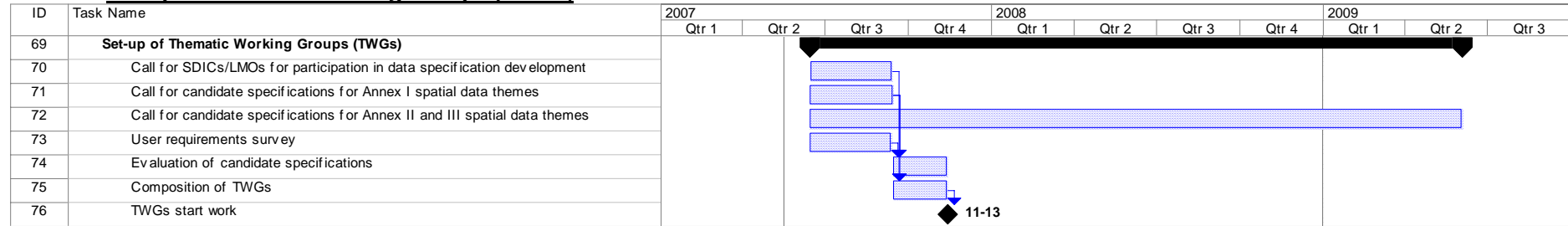


5.3.2 Interoperability of spatial datasets and services

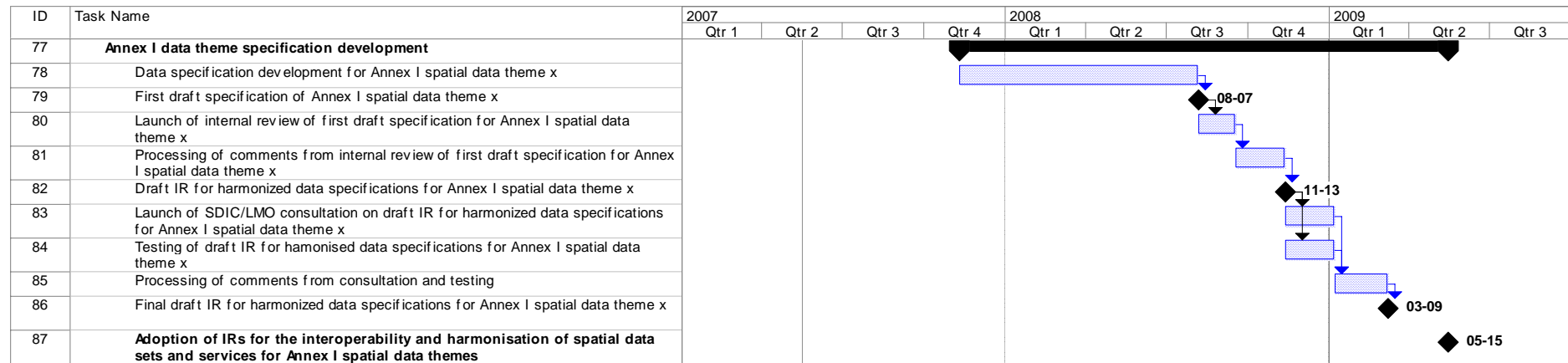
5.3.2.1 Preparatory technical work for data specification development



5.3.2.2 Set-up of Thematic Working Groups (TWGs)



5.3.2.3 Annex I data theme specification development



5.3.3 Network services

