



## INSPIRE Infrastructure for Spatial Information in Europe

### Terms of Reference for developing Implementing Rules laying down technical arrangements for interoperability and harmonisation of spatial datasets of Annex II and III themes

---

Title	Terms of Reference for developing Implementing Rules laying down technical arrangements for interoperability and harmonisation of spatial datasets of Annex II and III themes
Creator	INSPIRE Consolidation Team
Date	05 November 2009
Subject	Data specifications development process for INSPIRE Annex II and III data themes.
Status	Final draft
Publisher	INSPIRE Consolidation Team
Type	Text
Description	Description of the process of the development of INSPIRE data specifications for Annex II and III, and the Terms of Reference for the actors involved in this process.
Contributor	K. Tóth, D. Lihteneger, V. Nunes de Lima, P. Smits
Format	PDF
Source	n.a.
Rights	Public
Identifier	ToR_dataspecs_Annex II&III.doc
Language	En
Relation	Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 (INSPIRE)  Call for Expression of Interest for participation in development of INSPIRE data specifications for Annex II & III Data Themes  Call for expressions of interest for INSPIRE development (2009/S 168-241622)  These and other background documents are accessible through the INSPIRE website: <a href="http://inspire.jrc.ec.europa.eu">http://inspire.jrc.ec.europa.eu</a>
Coverage	2009-2012

---

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

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 2 of 20

## Abbreviations

CT	INSPIRE Consolidation Team
DG	Directorate General
DS	Data Specifications
DT	INSPIRE Drafting Team
EC	European Commission
EEA	European Environment Agency
Eionet	European Environment Information and Observation Network
EU	European Union
GCM	Generic Conceptual Model
GMES	Global Monitoring for Environment and Security
INSPIRE	Infrastructure for Spatial Information in Europe
IR	Implementing Rule
ISO	International Organisation for Standardization
JRC	Joint Research Centre
LMO	Legally Mandated Organisations
MD	Metadata
MR	Monitoring and Reporting
MS	Member State
NS	Network Services
SDI	Spatial Data Infrastructure
SDIC	Spatial Data Interest Community
TC	Technical Committee
TOR	Terms of Reference
TWG	INSPIRE Thematic Working Group
WP	Work Programme

## Table of contents

1	Introduction .....	5
1.1	Rationale .....	5
1.2	Principles and differences with respect to call for Annex I.....	5
2	Process .....	7
2.1	User requirements and use cases .....	7
2.2	Drafting, testing, and consultation.....	7
2.3	Communication .....	8
2.4	Service contracts.....	8
3	Actors in the data specification development process.....	10
3.1	Spatial Data Interest Communities and Legally Mandated Organisations.....	10
3.2	INSPIRE Drafting Teams (DTs) .....	11
3.3	INSPIRE Data Specification Drafting Team.....	11
3.4	INSPIRE Consolidation Team (CT).....	13
3.5	INSPIRE Thematic Working Groups (TWGs) .....	14
3.6	Specification development experts .....	16
3.7	Facilitators .....	17
3.8	Editors .....	18
3.9	INSPIRE European Commission Contact point.....	19
3.10	The role of Projects, Pilots, and Prototypes.....	19
4	References.....	20

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 4 of 20

## Purpose of this document

This document describes the process for the development of the INSPIRE data specifications required for the Implementing Rules (IR) laying down technical arrangements and, where applicable, harmonisation of spatial datasets and services belonging to Annex II and III of the INSPIRE Directive (2007/2/EC) in fulfilling the tasks detailed in Art. 7. It furthermore defines the terms of reference (ToR) of the actors involved in this process.

This document provides information complementary to:

- Call for Expression of Interest for participation in development of INSPIRE Data Specifications for Annex II & III Spatial Data Themes;
- Call for expressions of interest for INSPIRE development (2009/S 168-241622) published on 09/09/2009, which aims at drawing up a list of candidate bidders (individual persons, public or private organisations, or consortia of service providers) to tender, assisting the Commission in the context of the INSPIRE Directive following the Commission's public procurement rules.

In particular, the current document defines the terms of reference for the roles of *facilitators* and *editors* referred to in call 2009/S 168-241622.

All documents are available from the INSPIRE website, <http://inspire.jrc.ec.europa.eu>.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 5 of 20

# 1 Introduction

## 1.1 Rationale

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.

The Implementing Rules laying down technical arrangements for the interoperability and, where practicable, harmonisation of spatial data sets and services, are requested by the Directive in Art. 7. The INSPIRE Directive states in Art. 7(5) that “representatives of Member States at national, regional and local level as well as other natural or legal persons with an interest in the spatial data concerned by virtue of their role in the infrastructure for spatial information, including users, producers, added value service providers or any coordinating body shall be given the opportunity to participate in preparatory discussions on the content of the implementing rules referred to in paragraph 1, prior to consideration by the Committee referred to in Article 22(1).”

In order to comply with Art. 7, the approach adopted for the development of data specifications follow a three-step approach. The first step involved the establishment of framework documents that facilitate a harmonised development of the data specifications (see section 4, Background documents), and has been completed. The second step involves the drafting of the technical details referred to as “INSPIRE data specifications”. In the third step, the Commission prepares the legal text, based on the outcome of step 2.

With the procedure and terms of reference described in this document, the Commission’s INSPIRE Consolidation Team (CT) is preparing the ground for the development of the INSPIRE data specifications for the Spatial Data Themes listed in Annex II and III. The process of development the INSPIRE data specification is once more based on the maximal transparency, openness, consensus building and involvement of stakeholders.

## 1.2 Principles and differences with respect to call for Annex I

Following the experience from the previous *Call for Expression of Interest for participation in development of data specifications for INSPIRE themes of Annex I (2007-11-07)* and the subsequent development of data specifications for Annex I, it has been recognised that the three scenarios foreseen at that time are no longer relevant. Experience shows that even if stakeholder communities can propose candidate specifications based on wide consensus, there is always the need for these to be harmonised and made consistent with the data specifications of other INSPIRE themes (for this reason formerly “Scenario 1” has been abandoned).

The main form of the data specification development of INSPIRE Annex II and III spatial data themes is based on the expertise of designated and theme-specific Thematic Working Groups (TWGs), set up with the domain expert selected by the CT from those proposed by the Spatial Data Interest Communities (SDICs) and the Legally Mandated Organisations (LMOs). This instrument of the development process (formerly “Scenario 2”), applies when the proposed contributions and the reference materials from the stakeholders are sufficient and appropriate for the development of data specifications for a given theme. The reference material provided and the identified user requirements need to be translated into the relevant use cases and harmonised data specifications that cover the scope of the themes and of the INSPIRE Directive. The knowledge acquired during the development of data specifications for themes of Annex I and the links already identified with themes of Annex II and III must be considered in order to guaranty the coherence with the INSPIRE Generic Conceptual Model (GCM). Each TWG will be completed by a Facilitator and by an Editor, selected by the CT. The CT reserves the right to modify the composition of the TWGs when necessary.

In case the proposed contributions in terms of experts and reference materials for a theme is insufficient (formerly referred to as “Scenario 3”), the CT may address a theme by targeted studies or contracts.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 6 of 20

In both cases, the data specifications developed will be submitted to the stakeholders for consultation and testing.

Sharing of domain expertise and resources will be even more important for the upcoming development process to facilitate the harmonisation between themes, to save time and to account for the interdependencies of many themes. Consequently, some of the Annex II and III spatial data themes may be combined into groups.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 7 of 20

## 2 Process

The process for the development of the INSPIRE data specifications involves the different steps outlined in chapter 6 of the *Methodology for the development of data specifications*. This section highlights the salient steps and provides additional information.

### 2.1 User requirements and use cases

Article 1 of the INSPIRE Directive states that INSPIRE should be established for purposes of Community environmental policies or policies and activities that may have an impact on environment. Therefore it should meet the requirements of environmental applications derived from existing legal acts and other most relevant applications, expressed through different user requirements and use-cases.

There are three aspects to the collection of user requirements in the context of Annex II and III:

1. Identification of thematic communities, the requirements of which need to be taken into account;
2. Active involvement of these communities in the identification of user requirements (i.e. surveys, interviews, reference material, but also by way of a selection of domain experts in the Thematic Working Groups (TWGs));
3. The mechanisms by which the requirements are being made available to the INSPIRE process (templates, webforms survey, etc.).

The CT provides the organisational framework for the three above-mentioned aspects, and will maintain the list of international organisations under Article 7 of the Directive. It will also liaise with relevant activities and initiatives in the European Union, the Group on Earth Observations (GEO), the European Environment Information and Observation Network (EIONET) on user requirements and use cases.

The complexity and the nature of the Annex II and III data themes obliges that enough attention be given to the identification and active involvement of the thematic communities, a number of which may even not have heard about INSPIRE. The CT and the INSPIRE Member States Contact Points shall work together on achieving this.

A typical INSPIRE use case addresses pan-European or cross border events/tasks and often deals with multilingualism. Detailed documentation of use cases will supply valuable input in the data specifications process. Such input can be submitted as a reference material, or through the questionnaire of the INSPIRE user requirement survey. Data providers are encouraged to submit relevant data product specifications when available, while data transformers should consider submitting specifications of the new products and solutions for data integration. It should be recognized that a single organisation cannot claim to be the single source for INSPIRE data specification, IR, or their specific parts. Even widely accepted and used specifications shall be verified against the INSPIRE user requirements and conformance to the INSPIRE Generic Conceptual Model (GCM) and shall go through stakeholder consultation and testing.

The first cut-off date for the submission of user requirements and reference material is 2010-01-31.

### 2.2 Drafting, testing, and consultation

After the analysis of the user requirements and the agreement on the relevant use cases, the TWGs will start the actual drafting of the data specifications following the framework documents (see section 4, References). There will be three main versions of the INSPIRE data specifications. The first version (v 1.0) will be reviewed in first place by the DS DT, the CT, and the rest of the TWGs. The objectives of this review are:

- to clarify how the user requirements are met,
- to check conformance to the INSPIRE conceptual framework, especially conformance to the GCM,

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 8 of 20

- to verify overall consistency,
- to provide feedback whether the parts of the IR already in place or the data specification and the documents of the conceptual framework need maintenance.

The TWG will then carefully analyse the comments received in the internal review within the CT, DS DT, and the other TWGs and complete/modify the draft when it is appropriate based on the supporting technical references and careful consideration of the expected benefits and the occurred costs. In order to resolve diverging proposals, the CT will provide facilities for further discussion. In case of no agreement, the final decision will be taken by the CT. The results of the review are summarised in version 2.0 of the draft, which will be made available for the SDICs and LMOs for consultation and testing.

The comments received from the SDICs and LMOs on version 2.0 will be analysed by the TWG. Each comment and proposal shall be considered; in case of rejection the decision has to be reasoned. In case of serious divergence between the technical solutions proposed by different stakeholders or substantial comments on their likely impacts, the TWG informs the CT, which provides further discussion forums, including a comment resolution workshop. The representative of the concerned SDIC/LMO is invited to this workshop to explain the position of its organisation and find the common resolution. All comments received from the stakeholders have to be analysed, being generic, theme specific and cross-theme related. They will be published on the INSPIRE web page, together with the corresponding resolution.

The data specifications v 2.0 will be tested. Given their specific position in the implementation of the Directive, relevant LMOs have a particular interest in testing the technical aspects together with analysing their likely impact. The TWG participates in the testing process by clarifying technical questions of the testers and analysing the results from the testing. All the suggestions of the testers have to be analysed.

The outcome of testing is incorporated in v 3.0 of the data specification. If there is a further need to discuss the result of testing, a specific workshop can be organised by the CT, were representative of the testers and the TWGs will be invited. The TWGs will shortly report on the way the results from testing were used on preparing the version 3.0 of the data specifications.

Version 3.0 of the data specification will be published as the INSPIRE Guideline on interoperability of spatial data sets and services for the data theme concerned. It is the basis for the IR to be drafted by the CT. The TWG will provide support to the CT in writing the IR in technical and thematic matters.

The drafting is expected to start in March 2010. The final Annex II and III data specifications and the corresponding legal text shall be ready by May 2012.

## **2.3 Communication**

The Commission services will provide the appropriate communication tools (intranet and common repositories, phone conference facilities, web conference facilities, modelling software, etc.) to the TWGs. In order to keep the data specification process traceable and easy to follow, the CT will maintain a specific calendar on the INSPIRE website.

Special attention will be paid to the communication between the TWGs in order to ensure cross-thematic interoperability and harmonisation. In particular, proper arrangements will be set-up for the editors of the TWGs that will work as a team in close collaboration with JRC staff.

Ad-hoc communication initiatives will be put in place whenever possible in terms of time and resources to facilitate the exchange of information and know-how between thematic communities and networks.

## **2.4 Service contracts**

After the responses to the *Call for Expression of Interest for participation in development of INSPIRE data specifications for Annex II & III Data Themes* have been analysed, the



INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 9 of 20

Commission will start the procedures for the procurement of services in support of those data themes where this is needed. It is anticipated that this will happen starting from January 2010.

This will include the use by the Commission of the list of candidate bidders (individual persons, public or private organisations, or consortia of service providers) that will be drawn up with the *Call for expressions of interest for INSPIRE development (2009/S 168-241622)* published on 09/09/2009.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 10 of 20

### **3 Actors in the data specification development process**

The aim of this section is to explicitly name the various actors in the development of the INSPIRE data specifications and to describe their terms of reference.

#### **3.1 Spatial Data Interest Communities and Legally Mandated Organisations**

##### **3.1.1 Background**

The way by which an organisation or network can be recognised as an INSPIRE stakeholders is to register to the INSPIRE website either as Spatial Data Interest Communities (SDICs) or Legally Mandated Organisations (LMOs). SDICs typically are networks of data producers, transformers and users, whereas LMOs are responsible in the Member States for one or more components of the INSPIRE Directive.

The registration for SDICs and LMOs remains open during the entire IR development period, to provide the possibility for inclusion of those stakeholders that wish to join at any later step of the data specification process.

It should be noted that the Commission does not verify the status of LMOs.

##### **3.1.2 Mandate**

SDICs and LMOs can provide the following in-kind (non remunerated) contributions:

- Identify, describe and submit user requirements,
- Propose groupings of data themes listed in Annex II and III that should be addressed by one TWG and provide reasons to do so.
- Provide reference material,
- Propose domain experts for one or several data themes,
- Propose facilitators for one or several data themes,
- Propose editors for one or several data themes; SDICs/LMOs have the right to propose a replacement for a TWG member should the interests of their organisations or the expert require so, which is subject of agreement with the CT. The CT reserves the right to modify the composition of the TWG according to the needs of the specification process.
- Participate in testing the technical specifications,
- Participate in the review process of the draft data specifications,
- Run or participate in tests of the draft data specifications,
- Develop, operate and evaluate implementation pilot,
- Participate in the comment resolution workshops convened by the Commission.
- Provide cost-benefit aspects of implementation,
- Develop initiatives for guidance, awareness raising and training in relation with the INSPIRE implementation.

##### **3.1.3 Timeframe of work**

As laid down in the INSPIRE Work Programme, specification tasks are linked to dedicated deadlines. Each supporting activity therefore must be accorded to guarantee the timely delivery of inputs. The following milestones are relevant for SDIC and LMOs:

- Submission of TWG experts (comprising facilitators and editors) 14 December 2009
- Submission reference materials (comprising user requirements) first cut-off date 31 January 2010
- SDIC-LMO consultation March- April 2011
- Specification testing March - September 2011

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 11 of 20

In addition, SDICs/LMOs are expected to support the work of their experts over the full data specification and IR development period between **February 2010 and May 2012**.

## **3.2 INSPIRE Drafting Teams (DTs)**

### **3.2.1 Mandate**

SDI components cannot be developed in isolation. Their interrelation should be kept in mind in order to take measures when coherence and technical solutions require so. The strong connection between data and metadata is straightforward data specifications comprises specific parts related to metadata. Implementing Rules on Metadata and data specification should not contradict; repetitions and gaps must be avoided.

The data specification and network services are also interlinked. View services need common coordinate reference systems as well as some default portrayal rules. WFS or WCS should be defined in accordance of the data to be transmitted. Further field of collaboration are the spatial data services. Some of such services are being specified (portrayal), but there is a clear need to investigate further requirements. This work can be done in collaboration of NS DT, DS DT and the TWGs.

The question what to monitor (e.g. which datasets) can be decided based on the final specification of the spatial data themes. Thus data specifications and the related parts of the IR give orientation to the Member States.

The DTs will be notified about the drafts delivered by the TWGs. The DTs will be offered the opportunity to check data specifications for eventual inconsistencies. In case of discrepancies the CT will take appropriate measures.

### **3.2.2 Terms of Reference**

The different roles of the DTs other than Data Specification in the drafting, reviewing and testing of the Implementing Rules can therefore be summarized as follows

- Advise the TWGs on technical and procedural questions on the request of the CT;
- Check whether the data specifications generate a need for amending the drafts, or the IRs already in place.

Regardless of their membership, the experts of the DT are eligible for membership in the TWGs. Such TWG members do not exercise their rights stemming the DT membership when the drafts of the particular TWG are discussed.

- Regardless of their membership the experts of the DT are also eligible to represent their SDIC/LMO at the comment resolution workshops.

### **3.2.3 Timeframe**

Because of the interrelations it is highly desirable that interactions between data specifications and metadata, network services, data sharing and monitoring take place during the entire data specification process. However the timeframes of various DTs differs from that of data specifications. If a DT is still in the place the CT will consult it whenever a cross component issue comes up. In other cases the CT will find an appropriate structure to achieve the resolution of the problem.

In case of Annex II and III all the DTs in place are expected to contribute in the following tasks and time periods:

- Internal review of data specifications V1.0: September 2010
- SDIC-LMO consultation: March-April 2011

## **3.3 INSPIRE Data Specification Drafting Team**

### **3.3.1 Mandate**

**Data Specification Drafting Team (DS DT)** is a group of experts proposed by the SDICs and LMOs to participate in the process of creation of IRs laying down technical arrangements for the interoperability and, where practicable, harmonisation of spatial datasets and services. It

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 12 of 20

was set-up based on the INSPIRE call published on 9<sup>th</sup> March 2005, and its composition has since then evolved based on the availability of experts and changes in the requirements of the DS DT.

The field of activities of DS DT in the data specification phase is twofold. On one hand the DT continues being in charge for the conceptual framework, which enables to keep coherent the specification development of the 34 spatial data themes of the Directive. They update the GCM if a generic concept is resulted from the data specifications. On the other hand the DT serves as an advisory group providing guidance to the TWGs and advising the CT in decisions concerning the coherence of the specification process and conformance to the GCM. DS DT will remain in place throughout the specification process; they will participate in each review cycle of the data specifications. The observations of the DT must be carefully analysed by the TWG.

The DS DT may propose to the CT to group several themes together if overall consistency requires so, or the grouping may lead to economies in the resources involved. The DT may recommend to the CT to involve additional expertise to ensure consistency between the spatial data themes. DS DT also proposes items for the INSPIRE Glossary<sup>1</sup> if there is a need to do so.

The members of the DS DT are invited to the eventual cross thematic working group meetings and teleconferences, they are involved in the comment resolution process to resolve generic issues of data specifications and advise the TWGs and the CT in questions related to the conformance to the GCM as well as the overall coherence of the data specification development and maintenance.

### 3.3.2 Terms of Reference

The different roles of the Data Specification DT in the drafting, reviewing and testing of the data specification process can therefore be summarised as follows.

- to propose grouping of themes for data specifications development by one TWG,
- to advise the TWGs and the CT on issues of conformance to the INSPIRE Generic Conceptual Model,
- to advise the TWGs and the CT on issues of overall coherence of the specification development,
- to advise the CT on issues of consistency between the themes
- to update the INSPIRE conceptual framework documents if the need is identified
- to propose items for the INSPIRE Glossary if the need is identified
- to advise the TWGs in generic data modelling questions
- to participate in the internal review of the draft Implementing Rules for Data Specifications
- to participate at the cross TWG meetings and teleconferences
- to participate at the comment resolution workshop upon the review within the SDICs/LMOs,
- To advise the CT in preparing the IR on Interoperability of Spatial Data Sets and Services
- To advise the CT on issues regarding the maintenance of data specifications

Regardless of their membership the experts of the DT are eligible for membership in the TWGs and may also act as facilitators and editors. Such TWG members do not exercise their rights stemming from the DT membership when the drafts of that TWG are discussed.

### 3.3.3 Timeframe of work

The DS DT remains in place throughout the data specification process, until May 2012. In connection of data specification development of Annex II and III two peak working period can be already identified:

- Internal review of data specifications v1.0 : September 2010
- SDIC-LMO consultation: March-April 2011

<sup>1</sup> <https://inspire-registry.jrc.ec.europa.eu/registers/GLOSSARY>

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 13 of 20

### **3.4 INSPIRE Consolidation Team (CT)**

#### **3.4.1 Mandate**

The INSPIRE **Consolidation Team (CT)** consists of the staff of the European Commission (DG Environment, Eurostat and JRC). Its role is to coordinate the IR development. DG Environment acts as the overall legislative and policy co-ordinator for INSPIRE; Eurostat acts as the overall implementation co-ordinator and supports the IR developments on data sharing and monitoring. JRC is the overall technical co-ordinator of INSPIRE, responsible for the development of IRs for metadata, data specification and network services. JRC guarantees the coherence with relevant standardisation initiatives and ensures the liaison with the European and international research community and their networks and is responsible for the technical coordination with other relevant EU and international initiatives, including the Global Monitoring for Environment and Security (GMES) and the Group on Earth Observation (GEO), and the Shared Environmental Information System (SEIS). JRC is also responsible for the development of the INSPIRE geo-portal, and coordinates the INSPIRE Initial Operating Capability (IOC) Task Force.

The CT is in charge for coordinating and supporting the IR development including the data specification process. It ensures the co-ordination with the needs of environmental policies, channelling the users' requirement in the specification process. It accommodates the operational component of the infrastructure like the consolidated UML model repository; INSPIRE Feature Concept Dictionary and Glossary, Code list registers, etc. and defines in which way they can be published and maintained.

The CT supports the collaboration within the TWGs, DS DT and when necessary, the rest of the DTs. The CT as a whole is responsible for strategic decisions and streamlining the activities. The interaction between the Commission Services, DTs and TWGs is also organised by the CT.

Considering the proposal of the DS DT, the CT will decide about grouping/linking themes together for specification development.

The CT determines the composition of the TWGs; selects its members including the facilitators and editors out of the experts proposed by the SDICs/LMOs, or individual experts replying the call for expressions of interest for INSPIRE development (2009/S 168-241622). The CT will ask the INSPIRE Member States Contact Points on their view on the composition of the TWGs. The CT will provide a contact point for each TWG to facilitate the dialogue between the various actors of specification process. Additional editing capacities could be offered by the Commission when appropriate and necessary.

Whenever necessary the CT will consult any of the DTs or invite additional experts to solve specific technical questions or cross DT issues. As proposed by the TWGs or the DS DT, the CT may convene technical workshops to support the specification process.

The first draft of data specifications will be reviewed in the first place by DS DT, the TWGs and the CT. The CT will keep informed all the DTs through their CT contact points about the main developments. The CT will ensure coherence among the data specifications by consulting relevant expertise when needed and decide whether the parts of the IR or the underpinning data specifications already in place need maintenance.

The CT will organise the review and testing the specifications within the SDICs and LMOs and also participates in the comment resolution process, being in charge for procedural and legal aspects. Based on the revised drafts, the CT will prepare the amendments to the IR and ensures its timely delivery to the Commission services that are in charge for the legal process.

#### **3.4.2 Terms of Reference**

The tasks and the role of the CT can be summarised as follows:

- to take strategic decisions connected to the IR development process
- to select and, if required, replace the experts for the TWGs

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 14 of 20

- to ask the Member States Contact Points on their view on the proposed composition of the TWGs
- to activate any DT to resolve specific cross DT issue raised by a TWG or DS DT,
- to invite additional expert to check cross theme consistency,
- to decide about theme grouping in IR development,
- to coordinate the collection of user requirements,
- to maintain a list of organisations under international law according to Art.7,
- to organise technical workshop to support the specification process,
- to keep informed all the DTs about the main developments of the specifications,
- to organise the review within the SDICs and LMOs,
- to organise the data specification testing based on the drafts provided by the TWGs,
- to convene comment resolution workshops, if necessary, following the consultation with SDICs and LMOs,
- to consolidate the results of the review,
- to prepare the amendments to the Implementing Rule in Interoperability of Spatial Data Sets and Services based on the data specifications for Annex II and III data themes delivered by the TWGs,
- to provide communication and meeting facilities,
- to identify ways in which registers can be published and maintained,
- to forward the final drafts to the legal procedure,
- to maintain the data specification calendar on the INSPIRE web-site,
- to liaise with other DGs of the Commission in order to ensure coherence between INSPIRE-related activities,
- To provide a contact point for each TWG,
- Additional editing capacities could be offered by the Commission when appropriate and necessary.

### 3.4.3 Timeframe

The CT remains in place until the Commission decides to dissolve the CT.

## 3.5 INSPIRE Thematic Working Groups (TWGs)

### 3.5.1 Mandate

The concept of INSPIRE Thematic Working Groups (TWG) was established in connection of the data specification development of Annex I themes. In spite of the tight timeframe the eight groups successfully delivered the data specifications, demonstrated commitment and competence in the dialogue with the stakeholders and provided valuable support to the CT to draft the implementing rule. These results encourage the CT to retain this working pattern as an efficient instrument to meet the challenges created by the big number of data themes in Annex II and III, and the stressed time frame, as well as the efficient way to keep the development process open to the participation of the MS through the stakeholders.

A TWG consist of one Facilitator, one Editor and a number of domain experts. The members of the TWG are selected by the CT based on their experience. In order to draw up a pool of competent experts the CT has decided to launch two separate calls for expression of interest. The first one *Call for expressions of interest for INSPIRE development (2009/S 168-241622)* was published on the INSPIRE web-site on 9 September 2009 targeting to draw up a list of technical experts who can be engaged in the process on contractual basis. The objective of the second *Call for Expression of Interest for participation in development of INSPIRE data specifications for Annex II & III Data Themes* is to involve stakeholders' in-kind participation.

The main objective of TWGs is to develop data specification(s) for the data theme(s) that are responsible for. Each theme listed in the Annexes of the Directive is designated by the CT to only one TWG. One TWG can be in charge for developing technical specifications for one or more themes. The process of developing INSPIRE data specifications is described in more details in D 2.6 Methodology for the development of data specifications.

The technical provisions for a data theme will be presented according to the data specification template provided by the CT. The development process will be governed by the INSPIRE conceptual framework.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 15 of 20

Whenever possible, the TWG will use the terminology, spatial object types, and other items already present in the INSPIRE registers. When new spatial object types, attributes, code lists or other elements need to be specified the TWG will propose the appropriate new entries to the CT.

The TWG can request the CT to involve additional expertise both for consistency checking and for resolving specific technical problems. The CT decides about the necessary measures ranging from appointing of additional experts from other domains to organising a technical workshop. The latter will be used mainly for solving cross-thematic issues of major importance.

The specification process shall be carefully documented and referenced; in case of competing solutions consideration should be given to technical and organisational aspects, related costs and benefits and the likely impacts.

In order to make results and benefits of INSPIRE visible for policy decision makers and the broad public, the TWGs are supposed to propose an easy-to-understand use example with necessary illustration upon the request of the CT.

### 3.5.2 Terms of reference

The different roles of the TWGs in analysing, drafting and reviewing of the data specification for themes of Annex II and III, Guidelines of the Implementing Rules can therefore be summarised as follows.

- to analyse and take into account, when appropriate, the reference materials, the user requirements and the standards developed by organisations established under the international law (Article 7(1) of the Directive),
- to apply the INSPIRE conceptual framework to ensure conformance to the INSPIRE GCM and overall consistency in specification development process applying the agreed methodology (D2.3, D2.5, D2.6, D2.7),
- to analyse already published INSPIRE Annex I Data specification Guidelines and IR data specifications for Annex I to identify relationships and dependencies to the Annex II/III themes in question,
- to develop data specifications for the spatial data theme (s),
- to assist other TWGs to sort out issues of cross theme relevance,
- to participate in the comment resolution process,
- to analyse the results from the testing and take them into account for the further data specifications development
- to share the internal task division set by the facilitator
- to document the data specification development process with full references and justifications
- to propose via the CT newly specified items or changes to existing items to the maintainers of the registers,
- to assist the CT in IR writing,
- to attend the remote and physical meetings convened by the facilitator,
- to follow the internal time schedule and respect the deadlines set by the facilitator of the TWG.
- to assist the CT in preparing appropriate theme specific communication material
- to deliver the following documents:
  - o Analysis of the reference materials;
  - o Analysis of the user requirements and documentation of the use-case development;
  - o Resolutions of the comments submitted by the stakeholders in frame of reviewing the draft data specifications;
  - o Data specifications to be included in the draft IR;
  - o Provide material that can be used for communication purposes.

Members of Annex I TWGs are eligible to apply for membership in Annex II and Annex III TWS, comprising the posts of facilitators and editors.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 16 of 20

### 3.5.3 Timeframe of work

The TWGs are expected to follow the timeframes set in the roadmap for Annex II and III. The workload of the members of TWGs is estimated as **80-100 working days** over the specification period between **February 2009 and May 2012**.

## 3.6 Specification development experts

### 3.6.1 Skills

The specification development experts are **domain experts** responsible for developing technical specifications for the spatial data theme(s) within a dedicated TWG. They are supposed to bring user requirements and/or implementation aspects; to provide expertise about the thematic domain and the data to be used in the application. Their skills and expertise make possible to review, take into account, and streamline standardisation and harmonisation initiatives of different international, national, regional and local initiatives in order to achieve interoperability and, where practicable, harmonisation of spatial datasets.

Domain experts basically work only in one TWG, but when overlaps and consistency with other themes require so they will assist/advise other TWGs too. The work of the domain experts is coordinated by the facilitator of the TWG. Each domain expert is expected to follow the internal schedule of the group and take a fair share of work contributing according to her/his best knowledge to the process and the documentation. They attend the remote and physical meetings convened by the facilitator.

### 3.6.2 Terms of reference

The role of **domain expert** can be summarised as follows:

- to analyse and take into account, when appropriate, the reference materials and the user requirements submitted by the INSPIRE stakeholders for the specific spatial data theme,
- to analyse and to take into account the standards developed by organisations established under the international law (Article 7(1) of the Directive),
- to refine the scope of the relevant data theme as described in D2.3,
- to apply the INSPIRE data specification development framework to ensure conformance to the INSPIRE Generic Conceptual Model and overall consistency in specification development process applying the agreed methodology (D2.5, D2.6, D2.7),
- to analyse already published INSPIRE Annex I Data specification Guidelines and IR data specifications for Annex I to identify relationships and dependencies to the Annex II/III themes in question,
- to analyse and, whenever possible, use common data types, data models (e.g. the generic network model) and common metadata elements for interoperability and other concepts and rules that apply to all spatial data themes and are listed in IR for interoperability of spatial data sets and data services,
- to use, the INSPIRE terminology from the common registers (Feature Concept Dictionary, Glossary, Code list register),
- to develop technical specifications for the spatial data themes assigned,
- to propose newly specified items or changes to existing items to the maintainers of the registers,
- to ensure consistency by cross-theme checking,
- to propose to the CT involvement of the experts from other domains or to propose the organisation a technical workshop(s) especially in case of cross thematic issues,
- to document the specification process with full references and justifications,
- to analyse the comments received from the CT and DS DT in the first review cycle and take them into account for the further data specifications development,
- to analyse the comments submitted by SDICs and LMOs during stakeholder consultation and testing, take them into account for the further data specifications development and to assist the CT in comments' resolutions,
- Provide technical expertise to the CT for correct formulation of the relevant parts of the implementing rule,
- to follow the timeframe of the work programme and the INSPIRE Directive,
- to contribute to delivery the following documents:
  - Analysis of the reference materials,
  - Analysis of the user requirements and documentation of the use-case development,



INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 17 of 20

- Resolutions of the comments submitted by the stakeholders in frame of reviewing the draft data specifications,
- Report on the inclusion of the testing results into the data specifications development regarding its theme,
- Final data specification – Guidelines as a basis for the IR,
- Provide material that can be used for communication purposes.

### 3.6.3 Timeframe of work

Domain experts will work **all over the data specification and IR development process** till May 2012. The expected workload of a specification development expert depends on the commitment made by the supporting SDICs or LMOs.

## 3.7 Facilitators

### 3.7.1 Skills

The **Facilitator** has firm knowledge of the data theme(s) that her/his TWG is responsible for; preferably 5 years or more, which allows **impartial balancing** of different ideas and solutions proposed by the domain experts in the specification process. In addition to the professional recognition, the facilitator needs to have good communication and strong management skills. Proven skills are required in consensus building.

In addition to the domain expertise, the facilitator has to prove to be able to fully understand the INSPIRE GCM and has to become familiar with the specification methodology. Experiences in applying UML, OCL and familiarity with the Enterprise Architect or equivalent software are considered an advantage.

### 3.7.2 Terms of reference

The CT will assign a facilitator to each TWG. The **facilitator** coordinates the work of the TWG, manages the specification process and ensures that all data harmonisation requirements are identified and adequately addressed and the methodology followed.

The facilitator acts as main contact point for the CT, the rest of the TWGs, and DS DT. She/he convenes and chairs the remote and physical meetings of the TWG and delivers written minutes of these events. She/he also keeps record of open actions and assigns them to various members of the TWG.

The facilitator participates at the cross TWG meetings convened by the CT, and chairs the session(s) related to his/her data themes at the eventual comment resolution workshop.

The facilitator informs the CT about any unexpected problem that may hinder the successful data specification process.

The role of the facilitators can be summarised as follows:

- Coordinate the work of the TWG that they are in charge for;
- Establish internal schedule for the TWG;
- Assign work to the members of the TWG;
- Systemise the document repository of the TWG on the Intranet site maintained by the Commission.
- Ensure that the reference materials, the user requirements, and the standards developed by organisations established under the international law (Article 7(1) of the Directive) are appropriately considered;
- Ensure applying the INSPIRE conceptual framework to guarantee conformance to the INSPIRE GCM and overall consistency within the themes, including the Annex I;
- Ensure that the terminology, the feature catalogue and other items maintained in the INSPIRE code lists are applied;
- Alert the CT if there is a need for maintenance of the data specification framework and the data specifications already in place;
- Identify and document any unknown aspect of use-case development and geographic information modelling;
- Act as contact point with other TWGs to sort out issues of cross theme relevance;

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 18 of 20

- Convene and chair the remote and physical meetings of the TWG;
- To coordinate the comment resolution process within the TWG and chair the related session at the comment resolution workshop;
- Inform the CT about any problem that may hinder the successful and timely delivery of the data specification(s) that the TWG is responsible for;
- Follow the INSPIRE roadmap;
- Set an internal schedule and ad-hoc planning allowing timely delivery the data specification(s);
- Participate at the cross TWG meetings;
- Assist the CT in IR writing.

### 3.7.3 Timeframe of work

Facilitators will work all over the data specification and IR development process till May 2012. The overall estimate of workload for this period is **70 days**.

## 3.8 Editors

### 3.8.1 Skills

The CT will assign and **Editor** to each TWG.

The editor has in-depth knowledge in information modelling and documentation; thoroughly knows the relevant international standards and the documents of the INSPIRE conceptual framework. In addition the Editor shall have proven skills in applying Unified modelling language (UML), Object constraint Language (OCL) and is familiar with the Enterprise Architect conceptual schema language tool or equivalent. Expertise within the thematic field is not required, nevertheless this is considered as an additional asset.

Editors will participate at the initial trainings on the principles of INSPIRE data modelling and the use of the consolidated UML repository delivered as web-seminars.

### 3.8.2 Terms of reference

His/her main role is to guide the TWG in questions related to data modelling and document the data specification(s) including the application schema(s) according to the data specification template provided by the CT. The editor also forwards new concepts for inclusion in the INSPIRE Feature Concept Dictionary and other registers to the CT.

The editor will work in a team of editors. The editor closely follows the work of the TWG(s) and gives advice on data modelling issues whenever it is requested by the TWG. He/she is responsible for developing the UML schema and submit it to the INSPIRE consolidated model repository.

The role of the editors can be summarised as follows:

- Assist the facilitator(s)
- Document items for the feature concept dictionary and other registers as derived from the UML application schema;
- Advise the TWG on data modelling issues;
- Ensure conformance with the Generic Conceptual Model and consistency with other themes;
- Apply ISO TC 211 standards;
- Document as UML diagrams the use-cases of the specification development process;
- Compile each version of the UML data model(s) and submit it to the INSPIRE consolidated model repository based on the results of the TWG;
- Document the eventual constraints in the model using OCL and natural language;
- Flag the eventual need for maintaining the GCM;
- Document the data specification(s) according to the template provided by the CT;
- Follow the internal roadmap established by the facilitator of the TWG;
- Participate at the remote/physical meetings of the TWG upon the request of the facilitator or the CT;
- Participate at the cross TWG meetings;
- Assist the CT in writing the IR.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 19 of 20

### **3.8.3 Timeframe of work**

Editors will work all over the data specification and IR development process till May 2012. The overall estimate of workload for this period is **45 days** for 1 theme. If desired, one Editor can edit more than 1 theme, which implies to be member of more than 1 TWG.

## **3.9 INSPIRE European Commission Contact point**

In order to keep coherent the data specification process and help the work of the TWGs, the CT will assign a INSPIRE contact point to each TWG excluding those where the European Commission provides the editor. For the latter, the editor will also act as contact point. Contact points come from the services of the European Commission and will be in charge to inform the TWGs about the decisions connected to the data specification process, about the general progress, plans, technical and collaboration matters, etc.

Contact points will follow the data specification process in such extent that they have a good understanding of the content and may spot possible risks in the process. It is expected that the facilitator and the contact point work in close collaboration to resolve such situations. On the request of the facilitator the contact points may participate at remote and physical meetings of the TWG.

Contact points are not supposed to participate in the technical work of the TWG by exclusion of the editor-contact points. They will solicit the requests of the TWG within the CT. A person may act as contact for one or more TWGs.

Besides the contact points for the TWGs, the CT has nominated a contact person for data specification, who is responsible for the contacts with the DS DT and coordinates the overall data specification process and the work of the data specification support team at the JRC.

### **3.9.1 Terms of reference**

The duties of the Commission Contact Points can be summarised as follows:

- Follow the work of the TWG(s) that are in charge for;
- Identify risks that may hinder the successful data specification process and assist the facilitator to resolve such situations;
- Inform the TWG about decisions related to the data specification process;
- Inform the TWGs about the general progress of the data specification process and INSPIRE as a whole,
- Inform the data specification support team at the JRC about TWG identified needs, difficulties or successes.

### **3.9.2 Timeframe of work**

Contact points will remain in place all over the data specification process till May 2012.

## **3.10 The role of Projects, Pilots, and Prototypes**

### **3.10.1 Mandate**

From the point of view of INSPIRE data specifications the projects, pilots and prototypes that target at developing and testing data specifications, harmonising the data component of infrastructures at different levels are of great value. Research and development projects where SDICs and LMOs participate (7<sup>th</sup> Framework Programme, GMES, eContentPlus, and other Community programmes) can provide input and/or facilities for drafting the data specifications. Pilots and prototypes are expected to demonstrate the feasibility and advantages of interoperability-based solutions for sharing spatial data and information services while observing the technical provisions set out in the INSPIRE Implementing Rules.

**Projects** may fully or partially support experts involved in TWGs, which contributes to the coherent development of INSPIRE and their initiatives. Providing reference materials and testing data / facilities is another valuable input in the INSPIRE process. Projects that wish to contribute to INSPIRE should register as a SDIC and follow the usual channels for interaction.

INSPIRE Consolidation Team	Reference: ToR_dataspecs_Annex IIIII	
Data Specifications – Annex II-III ToR	05-11-2009	Page 20 of 20

**Pilots and prototypes** will be used to test the draft specifications. Depending on the nature of the pilots, they can help in revising and further development of the specifications. A typical pilot project is intended not only to provide a prototype but also to realise pre-operational components of INSPIRE.

### 3.10.2 Terms of Reference

The tasks and role of projects pilots and prototypes can include:

- to develop representative use-case scenarios
- provide reference materials for the specification process
- to support specification experts
- to demonstrate the feasibility and advantages of interoperability-based solutions
- to acquire experience in implementing the specifications included in the drafts,
- to propose application schemas for testing the data specifications and to perform the testing,
- to develop specific tools related to data specifications
- to contribute for the cost/benefit considerations
- to determine the impact of implementing specifications.

### 3.10.3 Timeframe of work

Any relevant project that runs within the specification period (until 2012) can contribute.

## 4 References

Commission-provided information about INSPIRE is available from the INSPIRE website, <http://inspire.jrc.ec.europa.eu>. The INSPIRE Forum website (<http://inspire-forum.jrc.ec.europa.eu>) provides information contributed by the INSPIRE stakeholders.

The following documents are particularly relevant for this document:

1. The *Directive 2007/2/EC of the European Parliament and of the Council establishing an infrastructure for spatial information in Community (INSPIRE)* (OJ L 108, 25.4.2007, p. 1–14)<sup>2</sup>
2. Roadmap for data specifications development<sup>3</sup>
3. Call for Expression of Interest for participation in development of INSPIRE data specifications for Annex II & III Data Themes<sup>4</sup>
4. Call for expressions of interest for INSPIRE development (2009/S 168-241622)<sup>5</sup>
5. Data specification development framework documents:
  - D2.3 The Definition of Annex Themes and Scope<sup>6</sup>,
  - D2.5 The Generic Conceptual Model<sup>7</sup>,
  - D2.6 The Methodology for the Development of Data Specifications<sup>8</sup>,
  - D2.7 Guidelines for the Encoding of Spatial Data.<sup>9</sup>

<sup>2</sup> <http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2007:108:SOM:EN:HTML>

<sup>3</sup> <http://inspire.jrc.ec.europa.eu/index.cfm/pageid/2/list/5>

<sup>4</sup> [http://inspire.jrc.ec.europa.eu/documents/Data\\_Specifications/Call\\_Annex\\_II\\_III.pdf](http://inspire.jrc.ec.europa.eu/documents/Data_Specifications/Call_Annex_II_III.pdf)

<sup>5</sup> <http://web.jrc.ec.europa.eu/callsfortender/index.cfm?action=app.tender&id=458&institute=5>

<sup>6</sup> [http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.3\\_Definition\\_of\\_Annex\\_Themes\\_and\\_scope\\_v3.0.pdf](http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.3_Definition_of_Annex_Themes_and_scope_v3.0.pdf)

<sup>7</sup> [http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.5\\_v3.1.pdf](http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.5_v3.1.pdf)

<sup>8</sup> [http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.6\\_v3.0.pdf](http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.6_v3.0.pdf)

<sup>9</sup> [http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.7\\_v3.0.pdf](http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.7_v3.0.pdf)