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Activities relating to the Working Group on Toponymic Data Files and Gazetteers

**Infrastructure for Spatial Information in Europe (INSPIRE) –
Status Report on the Development of Implementing Rules for
Geographical Names Data^{*}**

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Summary

The Directive 2007/2/EC of the European Parliament and of the Council adopted on 14 March 2007 aims at establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) for environmental policies, or policies and activities that have an impact on the environment. INSPIRE will be based on the infrastructures for spatial information that are created and maintained by the Member States. To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and trans-boundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas.

This working paper presents a status report on the development of Implementing Rules for geographical names within the INSPIRE legal framework.

The Implementing Rule for geographical names will be available immediately after its adoption in 2009. Hence, the geographical names concept and schema introduced in this working paper is still subject to changes until the final version.

1. Rationale

INSPIRE is a Directive adopted by the European Commission [INSPIRE, 2007] with the aim at setting the legal framework for the establishment and operation of an Infrastructure for Spatial Information in the European Community. The purpose of such infrastructure is to support the formulation, implementation, monitoring activities and evaluation of Community policies and activities that may have a direct or indirect impact on the environment at various levels of public authority, European, national and local.

INSPIRE should be based on the infrastructures for spatial information that are created and maintained by the Member States. The components of those infrastructures include: metadata, spatial data themes (as described in Annexes I, II, III of the Directive), spatial data services; network services and technologies; agreements on data and service sharing, access and use; coordination and monitoring mechanisms, processes and procedures. Geographical names are considered to be one of the most important components and are therefore part of Annex I. The guiding principles of INSPIRE are that the infrastructures for spatial information in the Member States should be designed to ensure that spatial data are stored, made available and maintained at the most appropriate level; that it is possible to combine spatial data and services from different sources across the Community in a consistent way and share them between several users and applications; that it is possible for spatial data collected at one level of public authority to be shared between all the different levels of public authorities; that spatial data and services are made available under conditions that do not restrict their extensive use; that it is easy to discover available spatial data, to evaluate their fitness for purpose and to know the conditions applicable to their use. As a principle existing operational processes should not be broken by INSPIRE. The Directive identifies what needs to be achieved, and Member States have two years from the date of adoption to bring into force national legislation, regulations, and administrative procedures that define how the agreed objectives will be met taking into account the specific situation of each Member State. To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas. Implementing Rules are adopted as Commission Decisions, and are binding in their entirety. The IR will be shaped in their legal structure and form by the Commission legal services on the basis

of technical documents prepared by especially convened Drafting Teams and Thematic Working Groups.

2. Technical approach and process

The challenges regarding the lack of availability, quality, organisation, accessibility, and sharing of spatial information are common to a large number of policies and activities and are experienced across the various levels of public authority in Europe. In order to solve these problems it is necessary to take measures of coordination between the users and providers of spatial information.

INSPIRE does not require collection of new data. However, Member States have to make their data available according to the Implementing Rules. Interoperability in INSPIRE means the possibility to combine spatial data and services from different sources across the European Community in a consistent way without involving specific efforts of humans or machines. It is important to note that “interoperability” is understood as providing access to spatial data sets through network services, typically via Internet (see figure 1). Interoperability may be achieved by either changing (harmonising) and storing existing data sets or transforming them via services for publication in the INSPIRE infrastructure. It is expected that users will spend less time and efforts on understanding and integrating data when they build their applications based on data delivered within INSPIRE.

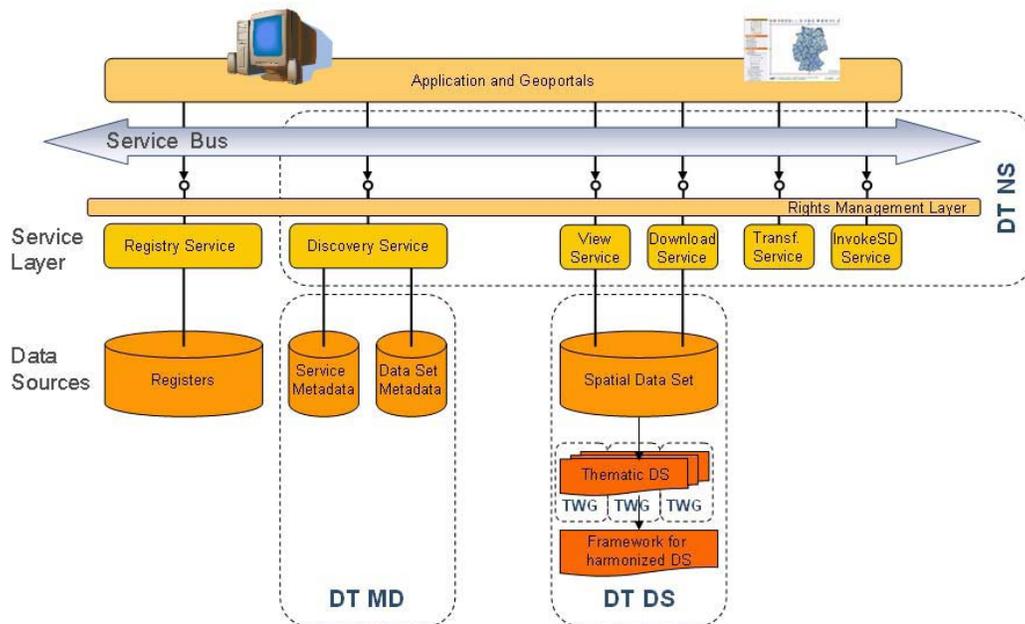


Figure 1: INSPIRE technical architecture overview

In order to benefit from the endeavours of international standardisation bodies and organizations established under international law their standards and technical means have been referenced, whenever possible.

To facilitate the implementation of INSPIRE, it is important that all stakeholders have the opportunity to participate in its specification and development. For this reason, the Commission has put in place a consensus building process involving data users, and providers together with representatives of industry, research and government. These stakeholders, organised through Spatial Data Interest Communities (SDIC) and Legally Mandated Organisations (LMO), have

provided reference materials, participated in the user requirement and technical surveys, proposed experts for the Data Specification Drafting Team and Thematic Working Groups, expressed their views on the drafts of the technical documents of the data specification development framework and are invited to comment the draft Implementing Rules on Interoperability of Spatial Data Sets and Services.

Based on the data specification development framework, the Thematic Working Groups have created the INSPIRE data specification for each Annex I theme. The data specifications follow the structure of the ISO 19131 standard [ISO 19131]. They include the technical documentation of the application schema, the spatial object types with their properties, and other specifics of the spatial data themes using natural language as well as a formal conceptual schema language. A consolidated model repository, feature concept dictionary, and glossary are being maintained to support the consistent specification development and potential further reuse of specification elements. The consolidated model consists of the harmonised models of the relevant standards from the ISO 19100 series, the INSPIRE Generic Conceptual Model [INSPIRE GCM, 2008], and the application schemas developed for each spatial data theme. The multilingual INSPIRE Feature Concept Dictionary contains the definition and description of the INSPIRE themes together with the definition of the spatial object types present in the specification. The INSPIRE Glossary defines all the terms (beyond the spatial object types) necessary for understanding the INSPIRE documentation including the terminology of other components (metadata, network services, data sharing, and monitoring).

By listing a number of requirements and making the necessary recommendations, the data specifications enable full system interoperability across the Member States, within the scope of the application areas targeted by the Directive. They are published as technical guidelines and provide the basis for the content of the Implementing Rule on Interoperability of Spatial Data Sets and Services for data themes included in Annex I of the Directive. The Implementing Rules will be extracted from the data specifications keeping in mind short and medium term feasibility as well as cost-benefit considerations. The Implementing Rule will be legally binding for the Member States. In addition to providing a basis for the interoperability of spatial data in INSPIRE, the data specification development framework and the thematic data specifications can be reused in other environments at local, regional, national and global level contributing to improvements in the coherence and interoperability of data in spatial data infrastructures.

3. Implementing Rules for geographical names

Geographical names are included in Annex I of the INSPIRE Directive, which means that they are considered as reference data, i.e. data that constitute the spatial frame for recognising geographical location in general, as well as linking to and/or pointing at other information that belong to specific thematic fields such as environment, addresses, area management, human health and many others.

The INSPIRE data specification on geographical names has been prepared following the participative principle of a consensus building process. The Thematic Working Group responsible for the specification development of *Geographical names* was composed of experts coming from Belgium, Finland, France, Germany, Norway, and Spain.

The specification process took place according to the methodology elaborated for INSPIRE respecting the requirements and the recommendation of the INSPIRE Generic Conceptual Model, which is one of the elements that ensures a coherent approach and cross-theme consistency with other themes in the Directive.

either as a reference point or the projected footprint when the named place has been inserted / changed, or eventually superseded / retired in the spatial data set.

Interoperability is also supported by a common reference system and provisions for visualisation. For the latter simple rules for default portrayal are given. According to this, all geographical names have to be displayed in one layer using the Arial font in 10pt. The reference point of text placement is the centre of the named places. The typefaces and fonts used for the portrayal of geographical names shall fully and correctly reproduce all the letters and diacritics/accents present in the spellings of the geographical names to be visualised.

The main value of the INSPIRE geographical names model is that it is a simple yet flexible structure that allows geographical names to be used as an attribute of a spatial object, either modeled within the geographical names theme or in any other theme of INSPIRE. The possibility of linking more names with the same named places gives the opportunity to integrate minority languages and exonyms, which are an important contribution to European multilingualism.

		Content , application schema Geographical Names v2.0:
m= mandatory	m	- name (spelling of name)
o = optional	m	- geometry {surface, curve, point & reference point meaning}
	m, o	- feature type (classification from harmonised list / local list)
	o	- language {three letter bibliographic codes from ISO 639-2}
	o	- native value of name {endonym, exonym}
	o	- script {four letters codes defined in ISO 15924}
	o	- transliteration scheme
	o	- grammatical gender {masc., fem., neuter, common}
	o	- grammatical number {singular, plural, dual}
	o	- pronunciation {International Phonetic Alphabet (IPA)}
	o	- identifier
	o	- link to related spatial object
	o	- status {official, standardised, historical, other}
not included		- local status
	o	- indicative level of detail {European, national, regional, local}
	o	- source of name
not included		- formal value (short / abbreviated, long)

Figure 3: Content of the INSPIRE geographical names model, version 2.0

As the specification on INSPIRE geographical names is the result of a detailed analysis of user requirements and involves strong consideration of existing initiatives that went beyond the strictly environmental scope, it is expected that it will also be a solid element of a multi-purpose European spatial data infrastructure.

The Implementing Rule for geographical names will be available immediately after its adoption in 2009.

REFERENCES

[INSPIRE, 2007] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007, establishing an infrastructure for spatial information in the European Community (INSPIRE), Brussels, 25.4.2007, Official Journal of the European Union (L108/1), <http://inspire.jrc.it/home.html>

[ISO 19131, 2007] ISO 19131:2007, Geographic information - Data product specifications

[INSPIRE GCM, 2008] INSPIRE Generic Conceptual Model, version 3.1, December 2008,
http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.5_v3.1.pdf

General web links:

INSPIRE News: <http://inspire.jrc.ec.europa.eu/>

INSPIRE public documents: <http://inspire.jrc.ec.europa.eu/reports.cfm>