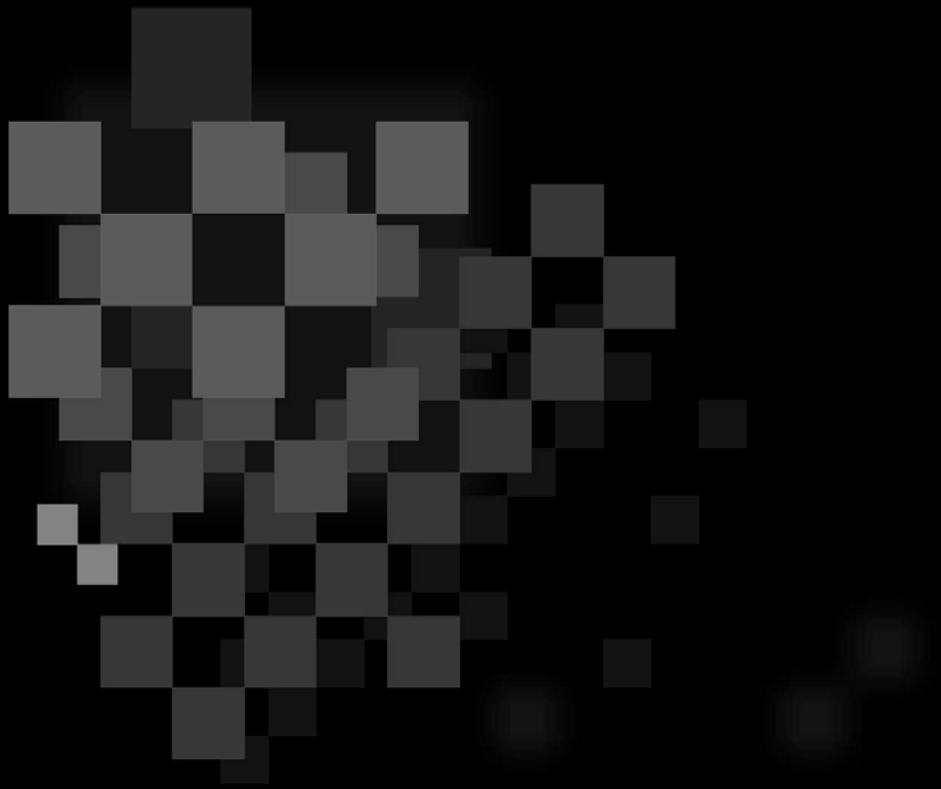


interactive instruments

Data Models and INSPIRE – the "Why" and the "How"

Clemens Portele – interactive instruments GmbH

What do the Drafting Teams do?


COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 23.7.2004
COM(2004) 516 final

2004/0175 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

establishing an infrastructure for spatial information in the Community (INSPIRE)

{SEC(2004) 980}

INSPIRE Draft Directive

Current or planned practice
(SDIC/LMO Reference Material)

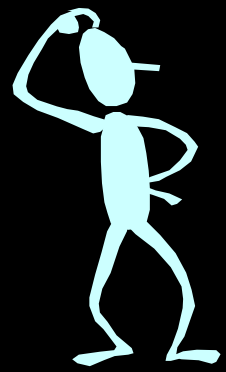
INSPIRE Drafting Teams

INSPIRE Implementing Rules

So ...

What does the INSPIRE Draft Directive say about Data Specifications?

What is the practice in the member states, SDICs, LMOs?



INSPIRE Draft Directive – Proposal Explanatory memorandum

- A coherent and widely accessible spatial description of the Community territory would deliver the requisite framework for coordinating information delivery and monitoring across the Community.

- The main beneficiaries of this proposal will … be those involved in the formulation, implementation, monitoring and evaluation of policies – at the European, national and local level.

INSPIRE Draft Directive – Proposal Explanatory memorandum

- The proposal focuses specifically on information needed in order to monitor and improve the state of the environment, including air, water, soil and the natural landscape. Much of this information needs to be underpinned by "multi-purpose" spatial data. In an infrastructure for spatial information, not all spatial data themes need to be subject to the same degree of **harmonisation**, nor can they be brought within the infrastructure at the same pace.

INSPIRE Draft Directive – Proposal Explanatory memorandum

- INSPIRE will not set off an extensive programme of new spatial data collection in the Member States. Instead, it is designed to optimise the scope for exploiting the data that are already available .... INSPIRE will pave the road for a progressive harmonisation of spatial data in the Member States.
- As regards harmonisation, INSPIRE will address only those aspects needed to achieve cross-level and cross-thematic consistency of spatial data and to make them available to support Community policies. For instance, INSPIRE does not require Member States to change the format of their spatial data holdings; instead, Member States can provide interfaces that transform heterogeneous data to a uniform model.

INSPIRE Draft Directive – Proposal Article 1

1. This Directive lays down general rules for the establishment of an infrastructure for spatial information in the Community, for the purposes of Community environmental policies and policies or activities which **may** have a direct or indirect impact on the environment.
2. The infrastructure for spatial information in the Community shall be based on infrastructures for spatial information established and operated by the Member States.

...

INSPIRE Draft Directive – Proposal Article 2 (1)

This Directive shall cover identifiable collections of spatial data, hereinafter “spatial data sets”, which fulfil the following conditions:

(a) they are related to an area under the jurisdiction of a Member State or to its exclusive economic zone/search and rescue region, or equivalent;

(b) they are in electronic format;

(c) …

(d) they relate to one or more of the themes listed in Annexes I, II or III.

INSPIRE Draft Directive – Proposal Article 6

For the purposes of this Directive, the following definitions shall apply:

1. ”spatial data” means any data with a direct or indirect reference to a specific location or geographical area;
2. “spatial object” means an abstract representation of a real-world entity related to a specific location or geographical area;
3. …

ISO 19100 series (19101/09/36):

- feature: abstraction of real-world phenomena
- geographic data: data with implicit or explicit reference to a location relative to the earth
- geographic feature: feature associated with a location relative to the earth

INSPIRE Draft Directive – Proposal Article 11

1. The Commission shall … adopt implementing rules laying down the following:

   (a) harmonised spatial data specifications;

   (b) arrangements for the exchange of spatial data.

2. …

INSPIRE Draft Directive – Proposal Article 12

1. The implementing rules provided for in Article 11(1)(a) shall be designed to ensure that it is possible for spatial data sets to be combined … in such a way that the result is a coherent combination of spatial data sets … that represents added value, without requiring specific efforts on the part of a human operator or a machine.
2. The implementing rules provided for in Article 11(1)(a) shall cover the definition and classification of spatial objects relevant to the spatial data and the way in which those spatial data are geo-referenced.

INSPIRE Draft Directive – Proposal Article 13

1. ...
2. The implementing rules shall address the following aspects of spatial data [from Annex I or II]:

   (a) a common system of unique identifiers for spatial objects;

   (b) the relationship between spatial objects;

   (c) the key attributes and the corresponding multilingual thesauri commonly required for a wide range of thematic policies;

   (d) the way in which information on the temporal dimension of the data is to be exchanged;

   (e) the way in which updates of the data are to be exchanged.

INSPIRE Draft Directive – Proposal Article 13

3. The implementing rules shall be designed to ensure consistency as between items of information which refer to the same location or between items of information which refer to the same object represented at different scales.
4. …

INSPIRE Draft Directive – Proposal Article 15

Member States shall ensure that spatial data sets collected or updated later than two years after the date of adoption of the corresponding specifications … are brought into conformity with those specifications, either through the adaptation of the spatial data sets or through their transformation.

INSPIRE Draft Directive – Proposal Article 16

1. ...
2. In order to ensure that spatial data relating to a spatial *feature* the location of which spans the frontier between two Member States are coherent, Member States shall, where appropriate, decide by mutual consent on the depiction and position of such common features.

INSPIRE IR Data Specifications - Requirements

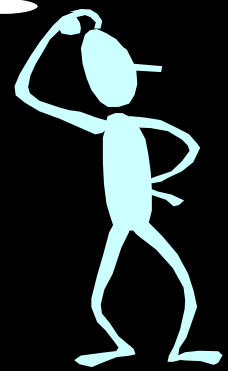
- Harmonisation of data will be progressive, and is not intended to trigger extensive spatial data collection efforts. The emphasis of the proposal is on achieving interoperability by leveraging existing data through transformation, rather than requiring new data collection efforts or wholesale re-engineering.

Planned Drafting Team „Data Specification“ Deliverables (2006)

Deliverable	Original Milestone
D 2.3: Definition of Annex I/II/III Themes and Scope	*2006-01-31*
D 2.5: First draft version of the Conceptual Model (generic aspects)	2006-06-30
D 2.6: First draft methodologies for data specifications	2006-10-31
D 2.7: First draft implementing rules for exchange of spatial data	2006-10-31

Priority in 2006: creating the foundation for data specifications and developing a methodology

So, what does „data harmonisation“ actually mean?



Key assumptions

- All nations & organisations (within a nation) start from different positions in terms of data models etc
- Due to different political, economic, cultural and organisational drivers, we will not achieve total harmonisation across every nation during the INSPIRE process
- We need to agree on a mechanism that provides a common language to support needs at EU and other large-scale cross-border and cross-sector levels
  - It is clear that in the first step we should concentrate on a limited set of aspects rather than trying to solve every problem (in every country across every kind of dataset)

Key assumptions

- Main goal at least for the foreseeable future will be „harmonisation“ through interoperability in a service-based architecture rather then (full) harmonisation of the underlying data models
- We have to consider data harmonisation requirements on different levels:
  - the schema level (use of common application schemas independent of the data model of the base data)
  - the data level (e.g. edge matching in border areas)
  - the information product level (e.g. integration on the level of raster maps hosted by Web Map Services or derived reports)

Key assumptions

- An INSPIRE Data Specification is based on a data product specification (DPS) according to ISO 19131. Such a DPS includes the following sections:

Mandatory:

- Overview
- Specification scopes
- Data product identification
- Data content and structure
- Reference systems
- Data quality
- Data product delivery
- Metadata

Optional:

- Data capture
- Data maintenance
- Portrayal
- Additional information

Terminology: Data harmonisation & Interoperability in the ESDI context

- *Data harmonisation* within the ESDI means that all countries use a common set of coordinate reference systems, data model, classification system, etc.

- *Interoperability* within the ESDI means that each country maintains their own infrastructure, but adopts a framework that enables existing datasets to be linked up from one country to another (e.g. via transformation or translation)

Data Harmonisation Components Overview

1. INSPIRE Information Model

1.1 INSPIRE Principles	1.4 ISO 19100 Profile	1.7 Object referencing modelling
1.2 Reference model	1.5 Multi-lingual text and cultural adaptibility	1.8 Data translation model/guidelines
1.3 Application Schemas	1.6 Coordinate refe-rencing and units model	1.9 Portrayal model

2. Operational components/registers

2.1 Identifier Management	2.3 Feature catalogues	2.5 Conformance
2.2 Terminology	2.4 Dictionaries	

3. Guidelines & Best Practice

3.1 Metadata	3.5 Derived re-porting & multiple representations
3.2 Maintenance	3.6 Consistency between data
3.3 Quality	3.7 Data capturing
3.4 Data Transfer	

These components apply to all types of spatial data including vector and coverage data (note that coverages are features, too). For the different spatial representation types, the components will in general be different.

What is the current practice in the member states/SDICs/LMOs?

- Review of reference material with respect to the highlighted data harmonisation components and the generic aspects of the conceptual model ongoing
  - Summaries of the SDIC/LMO approaches with respect to the individual components
  - Identify issues and develop a proposal for each of these components
    - Main topic on our agenda on Wednesday

  → Deliverable D2.5 „First draft version of the Conceptual Model (generic aspects)"
- We are looking forward to learn more about the existing approaches regarding applciation schemas in Europe

Thank you very much ☺

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