



INSPIRE Thematic Working

Cadastral parcels

September 2008



The INSPIRE context

The INSPIRE Directive



- Its aim is to build the Infrastructure for Spatial Information in Europe
- The INSPIRE Directive has been adopted in May 2007

The INSPIRE Directive



- Main purposes:
 - Make more and better geographic information available
 - For the European Commission, the public bodies and the citizens
 - To support environmental policies (or policies which may have an impact on environment)

The INSPIRE Directive



- Main content:
 - Metadata
 - Harmonised data (specifications)
 - Network services
 - Data sharing
 - Reporting and monitoring



The INSPIRE Directive

- Data included in the Directive
 - Annex I: CRS, grids, administrative units, transport, hydrography, addresses, geographical names, **cadastral parcels**, protected sites
 - Annex II: elevation, orthoimage, land cover, geology
 - Annex III : mainly environmental data

The INSPIRE Implementing Rules



- The INSPIRE Directive is a very generic text giving main principles
- ⇒ Need for more detailed, technical Implementing Rules

The INSPIRE Implementing Rules



- To define these IR, the European Commission has involved stakeholders in geographic information:
 - SDIC: Spatial Data Interest Community
 - LMO: Legally Mandated Organisations
- ⇒ representation of data producers, data users, European organisms, Universities, standardisation bodies, private companies

The INSPIRE Implementing Rules



- Since 2005, five Drafting Teams have been set up:
 - Metadata
 - Specifications
 - Network services
 - Data sharing
 - Monitoring and reporting
- SDIC/LMO have provided:
 - Experts
 - Reference Material

Data specifications: a two steps approach



- 2005 – 2008:
 - common framework for data specifications
 - by DT DS (Drafting Team Data Specifications)
- 2008 – 2011
 - Harmonised specifications for the 34 Annexes themes
 - for Annex I themes: during 2008 -2009
 - for Annexes II and III: from 2009 to 2011



General principles

INSPIRE must be based on existing data

Harmonisation in INSPIRE must be done only if there are user requirements:

- pan-european use cases
- cross-border use cases
- linked with environment

Harmonisation has to be feasible and cost-benefits have to be analysed.

INSPIRE stakeholders



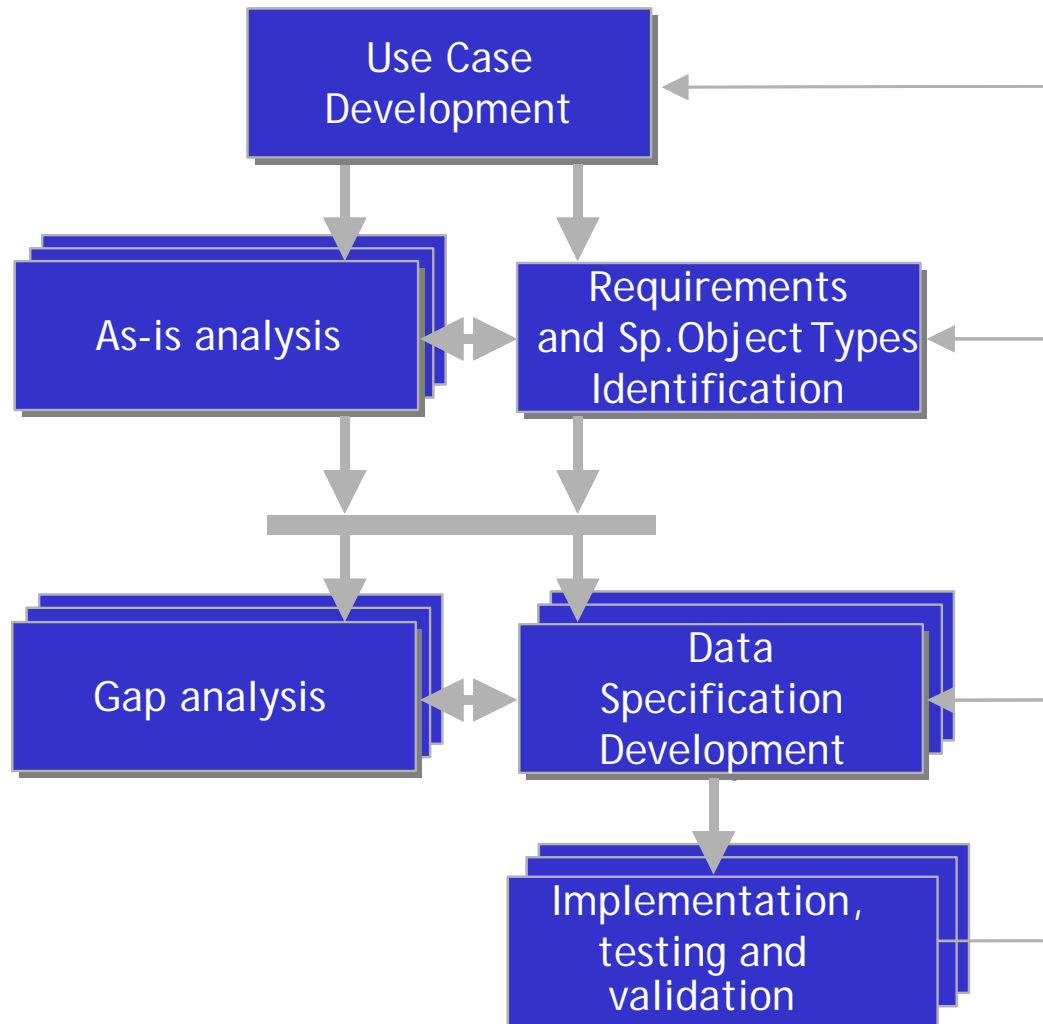
- Thematic Working Groups: TWG
- Piloting actors:
 - CT/JRC
 - DT DS (compliance to DT DS documents)
 - EIONET (user requirements)
- Supporting actors
 - SDIC/LMO
 - Projects (e.g. *eContent* + projects)

Role of INSPIRE TWGs



- Contribute to the elaboration of Implementing Rules for data specifications
- TWGs have to define DPS (Data Product Specifications)
- DPS will be converted in:
 - Binding Implementing Rules
 - Non-binding guidelines
 - Testing and feasibility issues will help to decide which components to be mandatory

General Methodology (for all TWGs)



Roadmap



- Kick-off meeting: 14-15/02/08
- First draft of data product specification: September 2008
- Internal review of first draft (DT DS, CT, EIONET): October 2008
- Second draft of data product specification: November 2008
- Review by SDIC/LMO: January 2009
- Testing, revised DPS: February 2009
- Submission to the INSPIRE Committee: May 2009

TWGs Reference Material



- Framework prepared by DT DS:
 - D2.3: description of themes and scope
 - D2.5: Generic Conceptual Model
 - D2.6 : Methodology
 - D2.7: Data exchange, encoding
- Reference Material provided by SDIC/LMO
- Results of the user requirement survey launched by JRC in February 2008.

TWGs composition



- Facilitator
 - Chairperson
 - Work based on INSPIRE methodology
- Editor
 - UML modelling, ISO standards
 - Work based on INSPIRE Generic Conceptual Model
- Thematic experts
 - Domain expertise
- JRC contact point



TWGs organisation

Coordination done through:

- common physical meetings
 - Kick-off meeting (14-15/02/2008) – Ispra
 - Joint meeting facilitators- editors – DT DS
 - 20/05/08 (Warsaw)
 - 24/06/08 (Maribor)
 - 24-25/08/08 (Ispra)
 - Comment Resolution Workshop (February 2009) – Ispra
- Telecon when necessary
- Mailing list : editors, facilitators, DT DS



TWG CADASTRAL PARCELS



Team members

- Dominique Laurent (IGN France) Facilitator
 - André Bernath (Switzerland) Editor
 - Gyula Ivan (NMA – Hungary)
 - Tarja Myllymäki (NLS – Finland)
 - Amalia Velasco (Cadastre- Spain)
 - Olav Jenssen (NMA - Norway)
 - Peter van Oosterom (TUD/Kadaster Netherlands)
 - Soren Riff Alexandersen (NMCA – Denmark)
 - Wim Devos (JRC)
 - Gareth Robson (UK)
- Thematic experts

Team members



TWG main events



- Kick-off meeting : 14-15/02/08 (Ispra)
- Meeting 14-15/04/08 (Palma)
- Workshop with EuroGeographics and PCC (03/06/08) + TWG CP meeting (04/06/08) in Brussels
- Meeting 08-09/09/08 in Verona with LADM chair and vice-chair

Use case development



- Selection of relevant use cases
 - user requirement survey (JRC)
 - TWG CP proposals
 - European
 - National (but potentially cross-border in future)
- Interest for INSPIRE:
 - European Directive =>MS have to deal with cadastral parcels in an harmonised way
 - Link with other themes (e.g. land use, utilities)

Use case development status



- Use a classification based on the one provided by the EuroGeographics Expert Group survey
 - Land market
 - Out of INSPIRE scope
 - Agriculture
 - Common Agriculture Policy (LPIS)
 - National examples (vineyard cadastre, ragweed monitoring)
 - Environment
 - soil protection (Soil Directive + national example)
 - water abstraction
 - Protected sites
 - Spatial planning
 - mainly national examples

Use case development status



- User requirements described in a checklist supplied by DT DS methodology (data harmonisation components)
- \approx 20 check-lists collected
 - wide range of applications
 - few countries represented (only 7)
 - some disappointing answers



As-is analysis

- Main sources
 - Reference Material: survey conducted by WG-CPI in 2005 about cadastral parcels in INSPIRE \Rightarrow generic information about most countries in Europe
 - TWG CP members or contact points \Rightarrow more detailed information in 15 countries
 - Questionnaire launched by TWG CP about the specific issue of raster data



Terminology

Cadastral parcels

- Definition (from the Directive): “areas defined by cadastral registers or equivalent”
- Description (from TWG CP): “single area on Earth surface under unique and homogeneous property rights”

Application schema (semantic)



- Cadastral parcels
 - Identifier
 - Official surface
- Cadastral index sets (e.g. municipalities, sections)
 - Name
 - Identifier (or code)



Spatial aspects

- Cadastral parcels as closed polygons
- Only 2D parcels
- Topology as optional attribute



Temporal aspects

- Temporal extent required by IR for metadata (data set level)
- Temporal information may be given also at feature level
 - Optional (not available in all MS)
 - Set of attributes supplied by Generic Conceptual Model



Identifier management

- Two requirements:
 - From users: need of identifier to make links with rights and owners (in national registers)
 - From INSPIRE directive: need of a unique identifier

- ⇒ Two attributes in the application schema:
 - National Identifier
 - INSPIRE Identifier



Quality

- Positional accuracy (1 m ?)
- Thematic accuracy (100% for national identifier)
- Completeness (100%)
- Topological consistency
- Actuality, update frequency (< 1 year)



Quality

- Quality elements will have to be reported at data set level
- Positional accuracy (and temporal information) may also be reported:
 - at Cadastral index set level
 - at Parcel boundary level



Metadata

- Core elements already included in IR about metadata for discovery
- Use lineage to give more information about initial cadastral data (national specificities)



Portrayal

- Need for a default styles for view services
- Two additional attributes:
 - Reference point
 - Label (generally last part of identifier)
- Discrete style (parcel contour in thin black line, parcel label also in black)

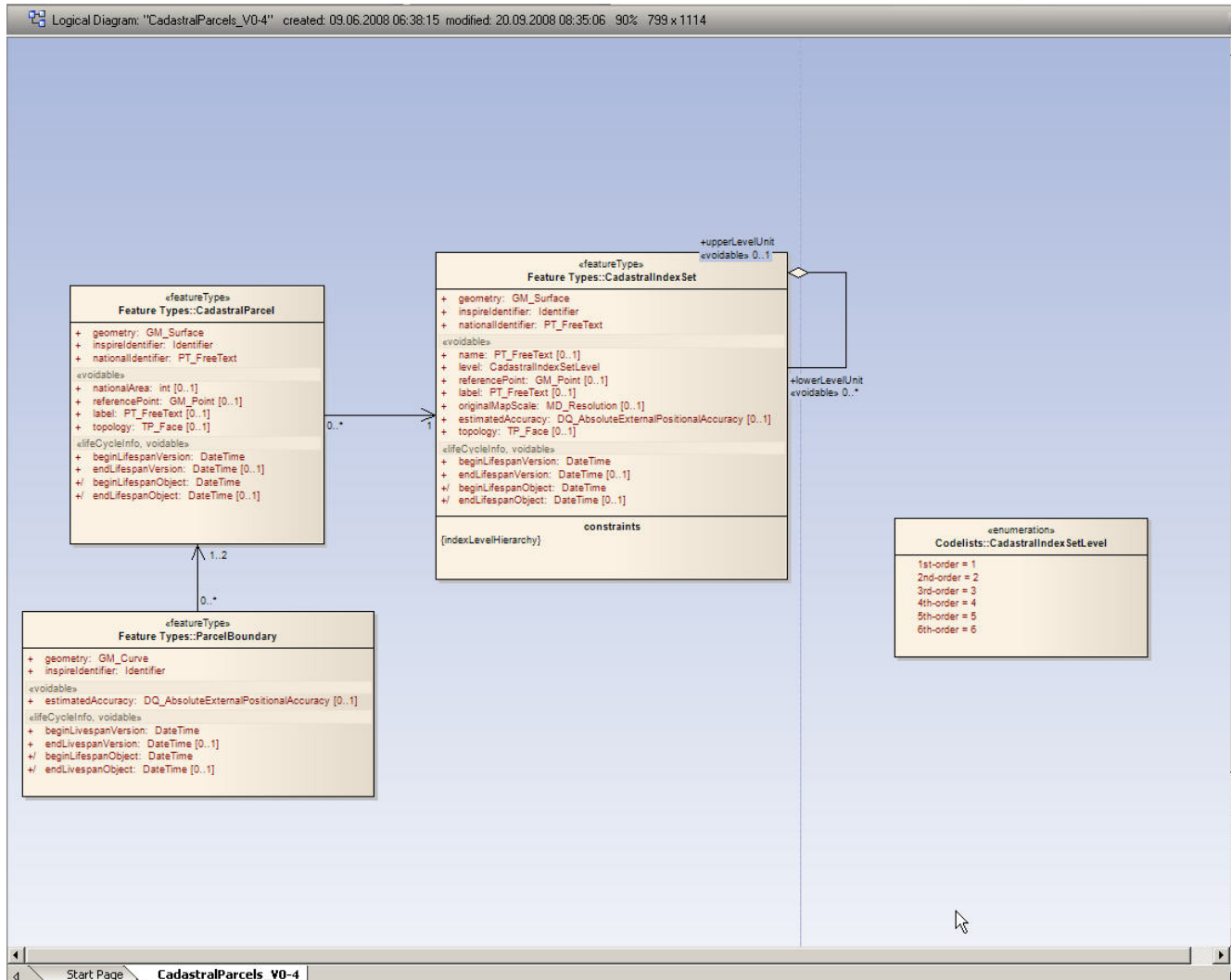


Delivery

- Current use of:
 - industry formats
 - GIS (shape, MIF/MID)
 - CAD (dxf, dgn)
 - National standards
- DT DS recommends GML + possible additional formats
- Only GML until now for cadastral parcels

Conceptual schema

Current draft





Next steps

- 30/09/08 : first draft of DPS
- From 30/09/08 to 15/10/08: internal review
- 15/11/08: second draft of DPS
- then:
 - Review by SDIC/LMO
 - Testing by volunteer SDIC/LMO
 - Third draft of DPS
- 15/05/09 : adoption of Implementing Rules

Joint work with LADM



- LADM as Reference Material
 - TWG has used it for Cadastral index sets (with adaptations)
- Peter Van Oosterom as member of both teams
 - INSPIRE profile of LADM
 - ⇒ Compatibility of INSPIRE and LADM schemas
- Joint meeting in Verona (08-09/09/08)