Generalisation in INSPIRE

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Outline

• INSPIRE
• Generalisation in INSPIRE
• What can INSPIRE bring to the generalisation community
• What can the generalisation community bring to INSPIRE
INSPIRE
INSPIRE

• Motivations
A lot of geographical data across Europe
Difficulty to combine them
  • catalogue needed
  • lack of harmonisation
Consequence: many needs are not covered

• A European “SDI” is needed
• Today:

Web
INSPIRE

• Needed:

Web
INSPIRE

• Components:
  – Metadata
  – Spatial data and service specifications
  – Network services
  – Data and service sharing rules
INSPIRE

• European directive
• **Purpose:** setting a legal framework for the establishment of a SDI in Europe
• Purpose is not to create a new infrastructure
• Concern:
  – Spatial data
  – For environmental policies (or may have an impact on the environment)
INSPiRiE

• INSPiRiE themes

Annex 1
• Coordinate reference systems
• Geographical grid systems
• Geographical names
• Administrative units
• Addresses
• Cadastral parcels
• Transport networks
• Hydrography
• Protected sites

Annex 2
• Elevation
• Land cover
• Orthoimagery
• Geology

Annex 3
Statistical units
Buildings
Soil
Land use
Human health and safety
Utility and governmental services
Environmental monitoring facilities
Agricultural and aquaculture facilities
Population distribution — demography
Natural risk zones
Atmospheric conditions
Meteorological geographical features
Oceanographic geographical features
Sea regions
Bio-geographical regions
Habitats and biotopes
Species distribution
Energy resources
Mineral resources
Generalisation in INSPIRE
Generalisation in INSPIRE

- INSPIRE components concerned:
  - Data specifications
  - Transformation service
  - Viewing service
Generalisation in INSPIRE

1. Data specifications

• INSPIRE data model
• Based on use cases and existing models
• Multiple representation demanded
• Example for hydrography: a data model for 3 use cases
The world:
The world: Mapping
The world: Network
The world: Reporting
The world: Data Specification Hydrography
2. Transformation service

Data providers will have to make their dataset compliant with INSPIRE schema

INSPIRE specifies the transformation service
2. Transformation service

Call for tender to specify the transformation services

Proposition: renaming of class and attribute.
True generalisation not yet considered.

Rob Walker Consultancy
Generalisation in INSPIRE

3. Viewing service

INSPIRE geoportal
Well-known problem of map generalisation
What can INSPIRE bring to the generalisation community
INSPIRE → Gene. community

- The INSPIRE data model, a candidate model for the generalisation community
- Necessity in generalisation to use enriched data
- **Example:** road network model, elevation
- Enable algorithms comparison, improve chaining
INSPIRE → Gene. community

- Improve development reuse and testing

Generalisation treatments that apply on INSPIRE compliant data could be reused on all European data.
INSPIRE → Gene. community

... a new play ground!
What can the generalisation community bring to INSPIRE
Gene. community → INSPIRE

- Generalisation methods (of course)
  - For data providers, to produce INSPIRE compliant databases

- Inside INSPIRE data model, to derive multiple representations
  “voidable“ representations: let's help to fill the void!
Example for statistical units

Spatial objects

Cartographic objects scale 1

Cartographic objects scale 2

... Cartographic objects scale n

Level 1

Level 2

.... Level n
Gene. community → INSPIRE

Solutions to (new) issues !
Gene. community → INSPIRE

1. How to generalisation the new theme data?
Are the existing methods extendable to these themes?

Temporal data
Gene. community → INSPIRE

INSPIRE themes

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2. How to manage the consistency between the themes?

Generalisation of an integrated data schema: how to generalise several themes altogether?
3. How to better formalise the LOD description in data schemas?

Is a GML extension needed?

How to analyse the differences between 2 data schemas to make it usable for generalisation systems?
4. How to automatically complete imperfectly described data schema?

How to deal with heterogeneous data?
Gene. community $\rightarrow$ INSPIRE

5. How to build a target data schema from a use case?
(On demand data)

My need $\rightarrow$
Gene. community → INSPIRE

6. How to visualise multi-thematic data?
New covisualisations of data
INSPIRE data mashups

How to represent the style for these new visualisations?
6. How to better integrate complex processes into a SDI?
Data processing capabilities (transformation, analysis, simulation)
Conclusion

• INSPIRE as:
  An opportunity to integrate generalisation works
  A new playground

A new opportunity to show the usefull things our community produces!
Conclusion

• Collaboration with INSPIRE

Contact your national network to promote our work,

Implement INSPIRE specifications to provide requirements/feedback for generalisation case.