ELF extensions

Presentation to: **INSPIRE MIG-T**

Author: **Anja Hopfstock (ELF WP2 Data Specifications)**

Date: **25th February 2016**

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What is ELF in connection to INSPIRE?

- Arrangements within NMCAs in Europe to co-operate and provide access point to key INSPIRE services for European/cross-border use, e.g. used in reporting and other governmental duties when trusted maps needed
- Diverse roles and responsibilities for INSPIRE across Europe
  -> NMCAs national broker role: to see that INSPIRE data services can be provided when multiple organizations are responsible
- ELF 1.0 specification fully INSPIRE compatible
- ELF interoperability: At least INSPIRE schema and ELF schema compliance will be met, cross-border and Pan-European features are important goals
- In future ELF schemas should be considered when updating INSPIRE schemas

! Ideally ELF service = INSPIRE national service!

Seeking endorsement of ELF extensions

Are ELF extensions reported as errors in the INSPIRE validation?

Do I have to set up 2 services – one for INSPIRE and one for ELF?

Can I re-use my national INSPIRE services for ELF?

Is my ELF (data & service) implementation INSPIRE compliant?

Do I have to care about ELF?

INSPIRE conformance/compliance:

- legal obligations (compliance) and
- technical requirements (conformance)

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Why extending INSPIRE?

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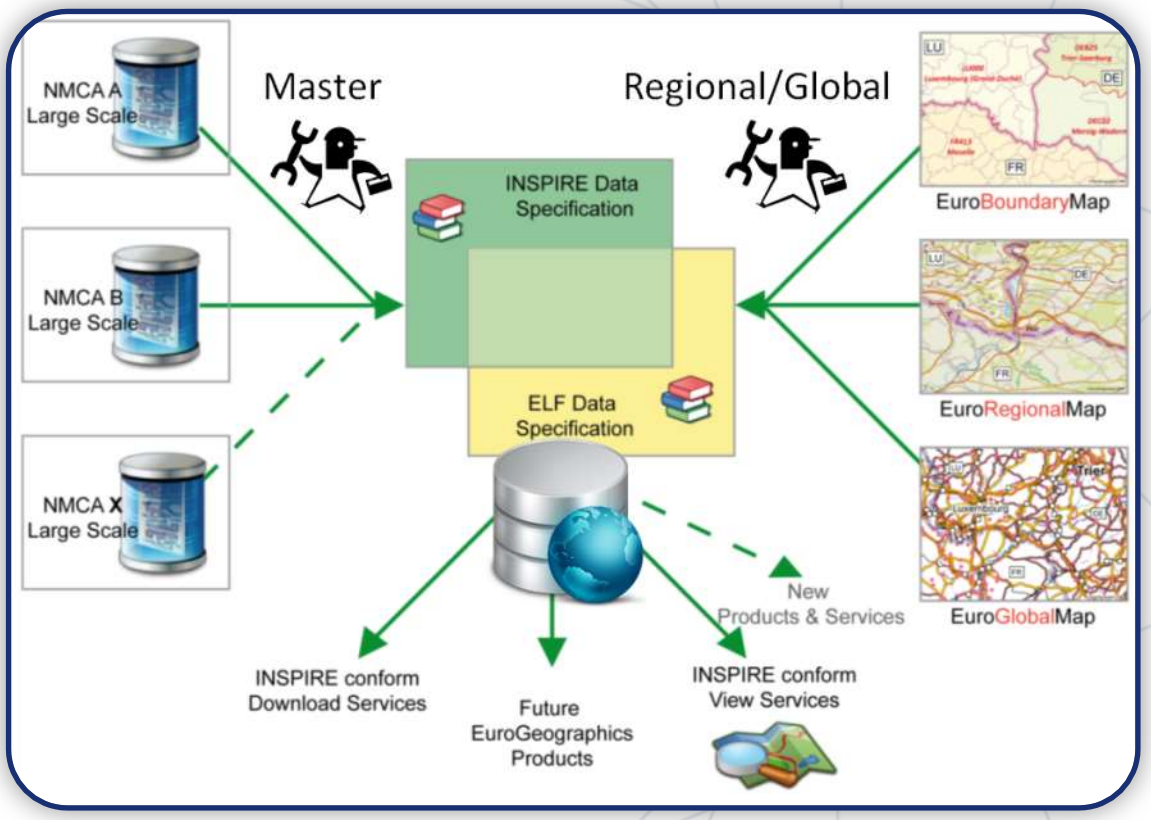
Why extending INSPIRE?

- ★ Data Specifications
  - ★ NMCA-profile for INSPIRE
    Seamless and consistent across borders
    Consistent between resolutions
    Consistent between themes
- ★ Data Maintenance and Processing
  - ★ Make reference data interoperable
- ★ Specifications for Content Services
  - ★ Make reference data easy to access



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INSPIRE		ELF				
Theme	Application Schema	LoD0	LoD1	LoD2	Regional	Global
AD	Addresses	x				
AU	AdministrativeUnits		x	x	x	x
SU	NUTS		x	x	x	
BU	Buildings2D	x	x	x	x	
	BuildingsExtended2D	x	x			
CP	CadastralParcels	x				
EL	ElevationGridCoverages		x		x	
	ElevationVectorElements		x	x		x
GN	Geographical Names		x	x	x	x
HY	Hydro - Physical Waters		x	x	x	x
	Hydro - Network		x	x	x	x
GE	Hydrogeology				x	x
SR	Sea Regions		x	x	x	x
LC	LandCoverVector		x	x	x	
TN	Common Transport Elements		x	x	x	x
	Air Transport Network		x	x	x	x
	Cable Transport Network		x	x		
	Railway Transport Network		x	x	x	x
	Road Transport Network		x	x	x	x
	Water Transport Network		x	x	x	x
PS	ProtectedSitesSimple		x	x	x	
MISC	Miscellaneous				x	

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How to extend INSPIRE?

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Types of extensions to INSPIRE

Identification of	Extensions	Data Specification	Data Model
Corresponding concepts	Common part 	Data Quality conformance criteria	Simple inheritance / specialisation
		Criteria for data capture	
concepts present in INSPIRE but missing in existing data	Restricted part 	Application schema excluded from ELF	
		Feature types ignored	
		Data types, attributes, associations	constraint
concepts present in existing data but missing in INSPIRE	Extended part 	New theme	Add application schema
		New feature types	Add feature type
		New data types or attributes	Add data type or attribute
		New associations	Add association

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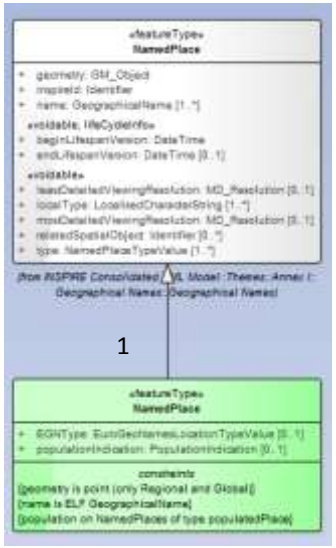
ELF UML Modelling Principles

To achieve INSPIRE compliancy in data modelling the following principles have been observed:

Extensions shall not

- ★ Change the specification but normatively reference it with all its requirements
- ★ Set any additional requirements that break any requirement of the INSPIRE data specification
- ★ Add concepts that overlap with existing INSPIRE concepts
- ★ Make a pure INSPIRE implementation non-conformant to the ELF specifications



1. Subtype all INSPIRE feature types valid for ELF (topographic reference data)
2. Define additional attributes
3. Add constraints
4. Define new ELF classes (feature types, datatypes, codelists)
5. Associate feature types (not in figure)

Extensions may

- ★ Add new application schemas importing INSPIRE or other schemas as needed
- ★ Add new types and constraints in the new application schemas
- ★ extend INSPIRE code lists if not centrally managed

Reference: ELF Modelling Guidelines

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Implementation of ELF code lists

- According to the GML 3.3 standard:
  - use of GML dictionaries is now deprecated for the purpose of implementing code lists
  - current best-practice: to generally use URIs for referring to code lists and code list items, and use the Resource Description Framework (RDF) for encoding their descriptions (e.g. SKOS: Simple Knowledge Organization System)
- SKOS files created manually:
  - Focus on first, miminal and working implementation
  - No resources available to find out which tool on the market would be best nor to learn how to use it
  - Experience with XML within WP2

Reference:

- Discussion paper
- Presentation

- Categories of ELF codelist
  - Extensions from INSPIRE code lists (e.g. NaturalObjectTypeValue)
  - From the DGIWG Feature and Attribute Data Registry , the ERM specifications or EuroGeoNames
  - New code lists (e.g. LandCoverClassValue)

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ELF Data Specifications

- ★ Data Specification document (PDF document, Feature Catalogue by LoD (HTML))
- ★ UML Data Model (Enterprice Architect model, HTML documentation)
- ★ ELF GML Application Schema files (XSD files)
- ★ ELF Codelists (HTML, SKOS)
- ★ ELF Portrayal (SLDs)
- ★ ELF Mapping Table Templates (XML files)
- ★ List of modelling issues (website)

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Summary

- Why extending INSPIRE?
  - From isolated national components to integrated, cross-border seamless authoritative reference data
  - INSPIRE compliant data for Europe
  - New apporach for pan-European geospatial reference data

- How extending INSPIRE?
  - different types of extensions
  - Apply on different levels of the data specifications (Data model, data quality, metadata, portrayal)
  - ELF Modelling guidelines ensure
    ! existing INSPIRE implementation by default is conformant to an ELF specifications for the themes that are in the remit of the ELF data specifications
    ! impact of such a precondition is that all ELF additions have to be optional (not even voidable), and that there should be no constraints on the INSPIRE that affects the INSPIRE GML application schema.

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Endorsing ELF extensions

Compliance:
Acknowledge as best-practice / valid INSPIRE implementation

- ★ success factor for the project
- ★ Cooperation with other data providers: easier to justify this national implementation when NMCA is not the only provider
- ★ Make users aware of this INSPIRE implementation providing data and services for European/cross-border use

Conformance

- ★ Successful validation of ELF data, MD and services with INSPIRE tools
- ★ ELF services are valid INSPIRE services
  -> only 1 service needs to be set up by data providers
  -> accepted in the INSPIRE monitoring

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Discussion

- Governance and maintenance of ELF extensions
  - Project partners during ELF Transition phase for 2 years after the project
  - Then EuroGeographics becomes owner of ELF results
    OR
  - ELF extensions are considered when updating INSPIRE schemas
- Maintenance of ELF extensions: data model, schemas, codelists, test suite, etc.
  - INSPIRE updates
  - ELF updates and bugfixes
- Guidelines for creating extensions to INSPIRE
- Registry of extensions

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From isolated components to integrated, cross-border seamless authoritative reference data …

ELF EUROPEAN LOCATION FRAMEWORK

Thank you!

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