Better Data, Better Tools

The ELF data harmonization and geo-processing

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Agenda

1. ELF project
2. ELF principles for providing better data
3. ELF principles for providing better tools
4. Conclusions

1.ELF project: www.elfproject.eu_-> Open EL

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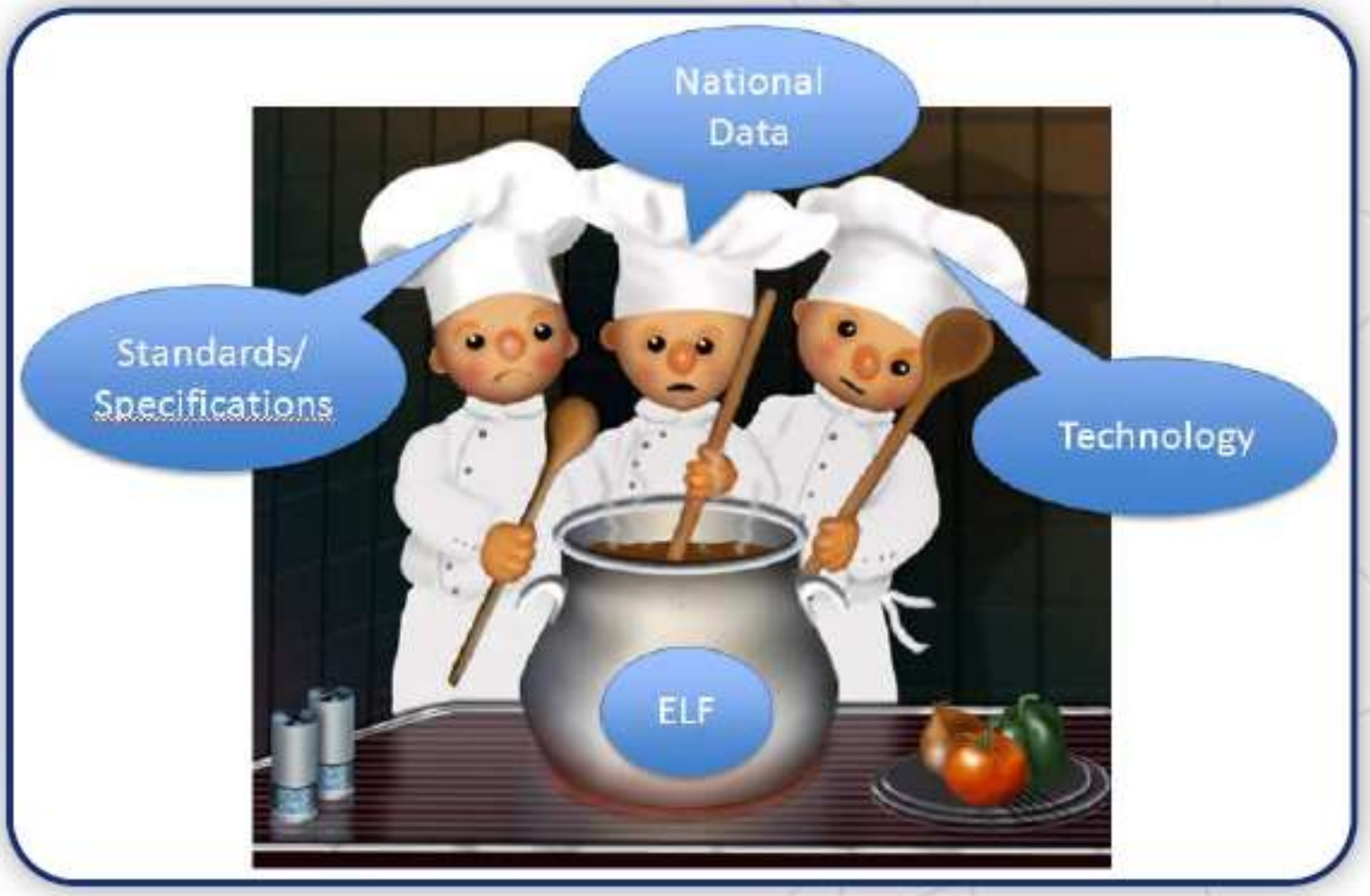
ELF Data: Objectives

To provide ELF data specifications based on **INSPIRE specifications**

To provide data maintenance and **processing specifications** for the **geo-tools**

To provide **product and service specifications** for the ELF services



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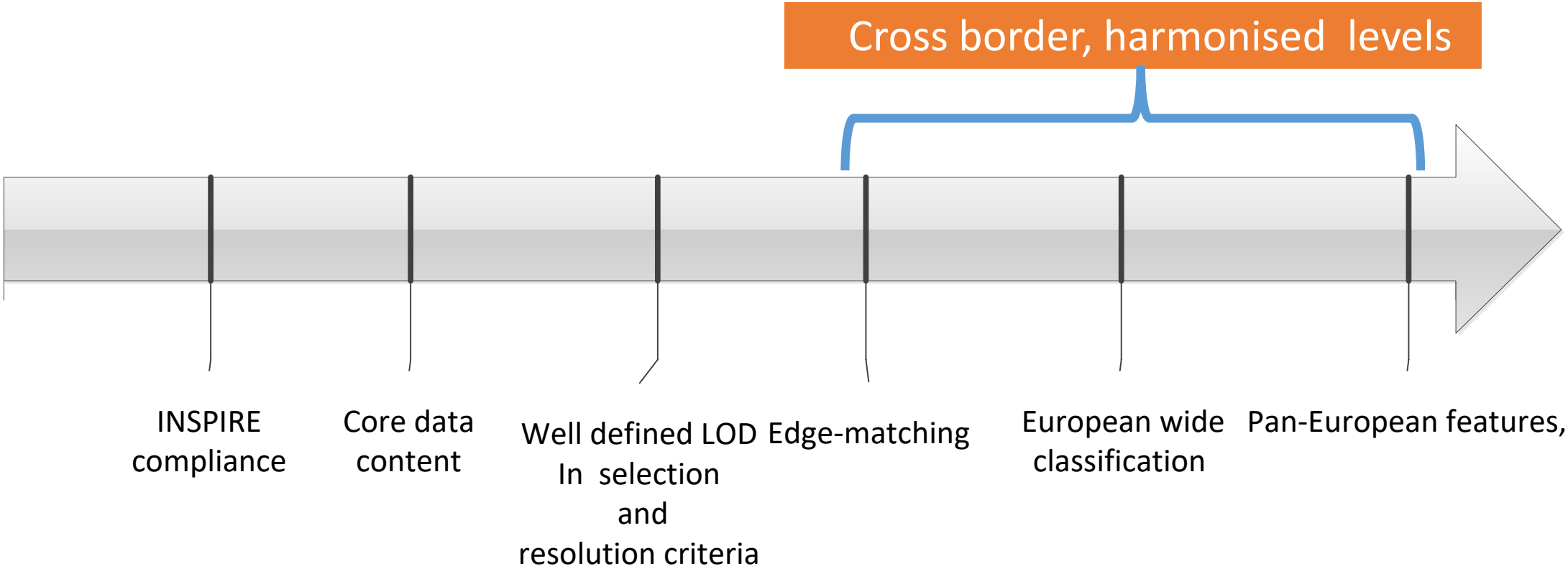
2. ELF principles for providing better data

- To provide **national authoritative reference** data
- To provide **cross-border harmonised data** at European level
- To **meet users needs** (European)
- To insure **sustainable maintenance** and updates of the data
- To adopt a **standard** dedicated to data exchange and **used by the geoprocessing tools**

2. ELF principles for better data : defining data interoperability levels



This graduated scale indicates a step by step approach to achieve the highest degree of interoperability

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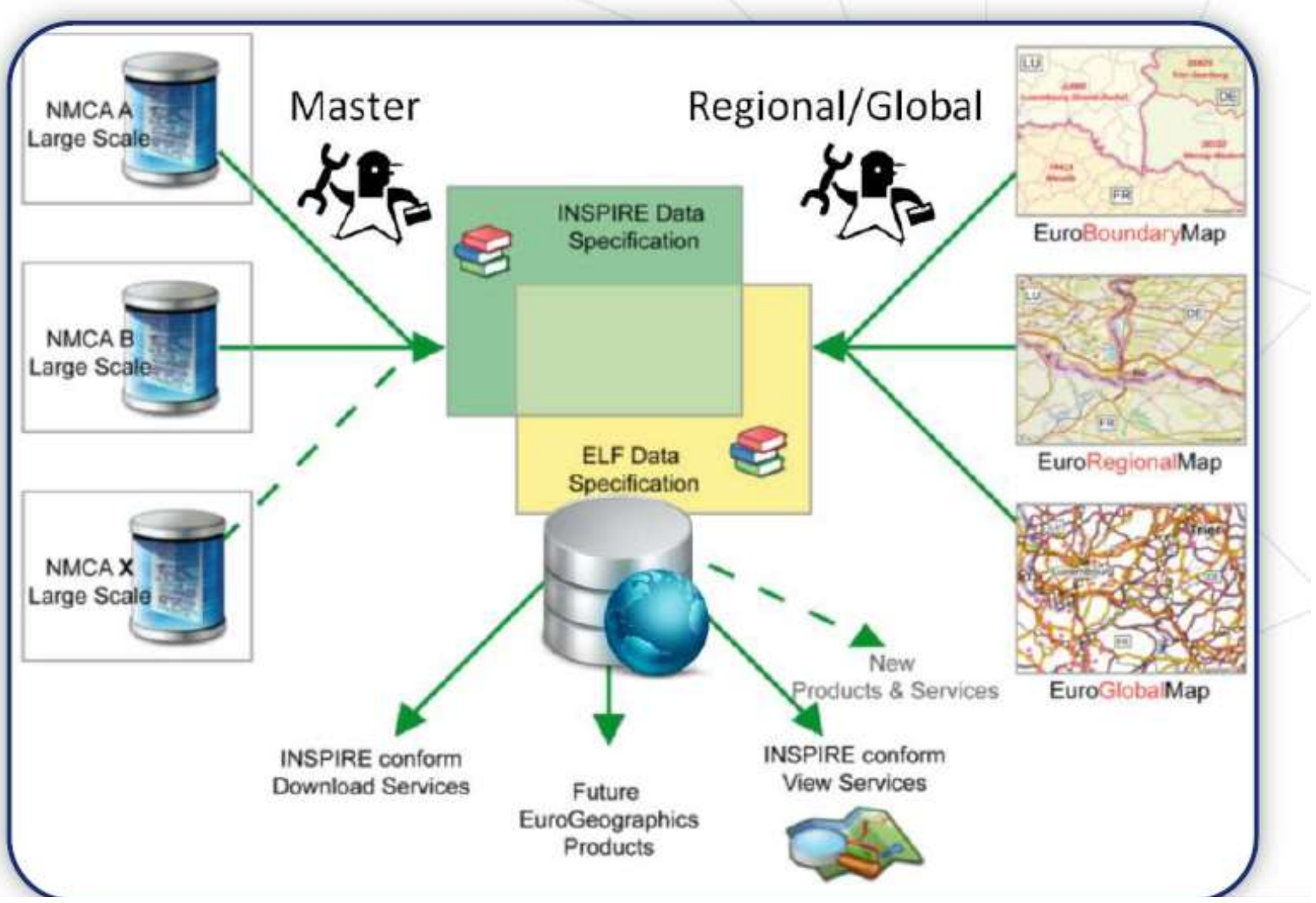
2.1 Core data content: INSPIRE and more



2.2 Well defined LoD in selection and resolution criteria

LoD	Scale range	Thematic scope
Master Level 0	Larger than 5k	Cadastral Parcels, Buildings, Addresses
Master Level 1	5k – < 25k	ELF Topo (Admin Units, Hydro, Transport, Elevation, GeoNames, etc.)
Master Level 2	25k – < 100k	ELF Topo generalised (1:50K)
Regional	100k – 500k	ELF Regional themes
Global	> 500k	ELF Global themes

- Master 0/1: prioritize the existing most detailed LoDs of NMCAs , **no harmonization so far**
- Master 2: **Generic rules** : common resolution and selection criteria based on what are the most commonly applied criteria among NMCAs.
- Regional/global: **mature level**

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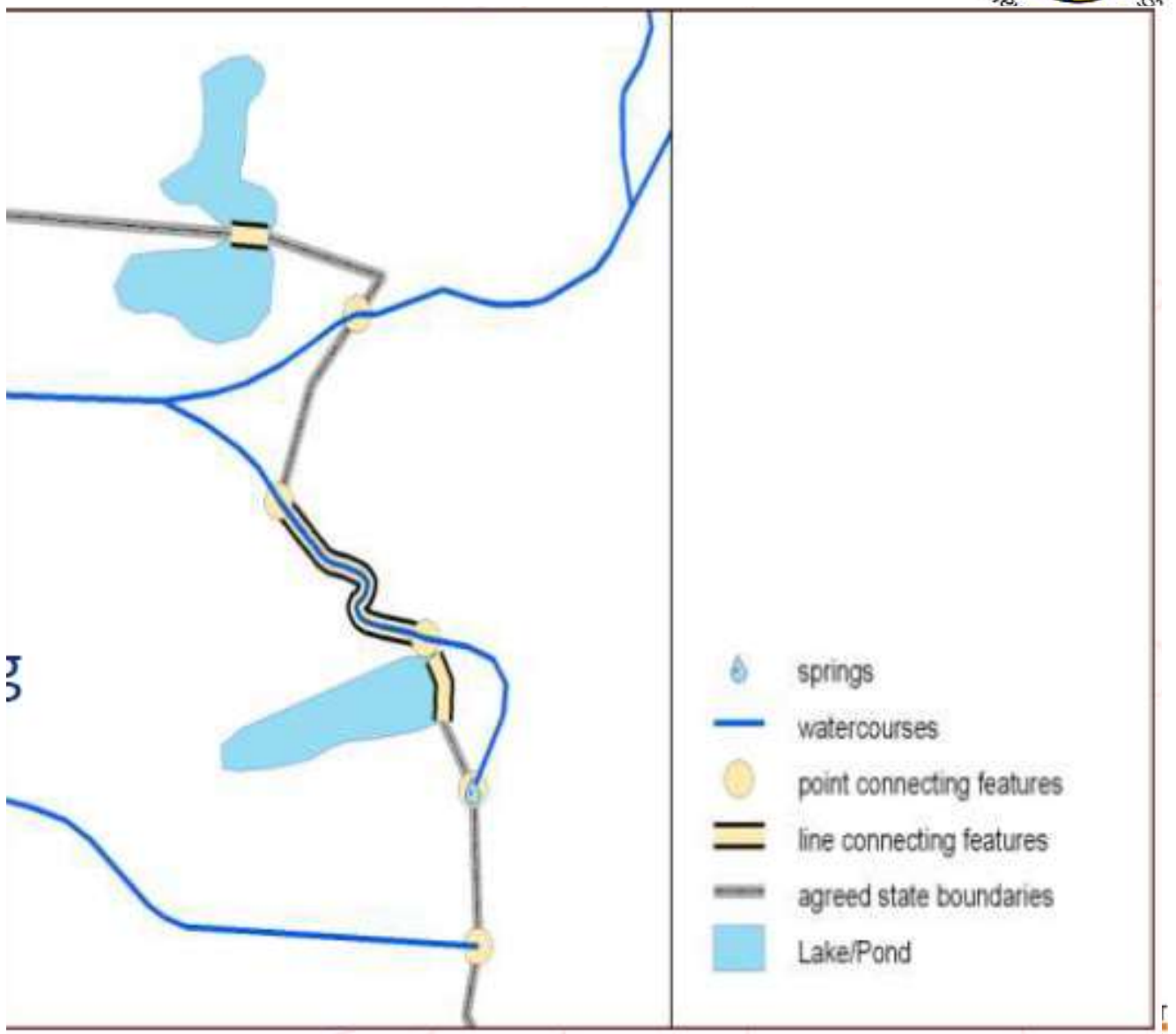
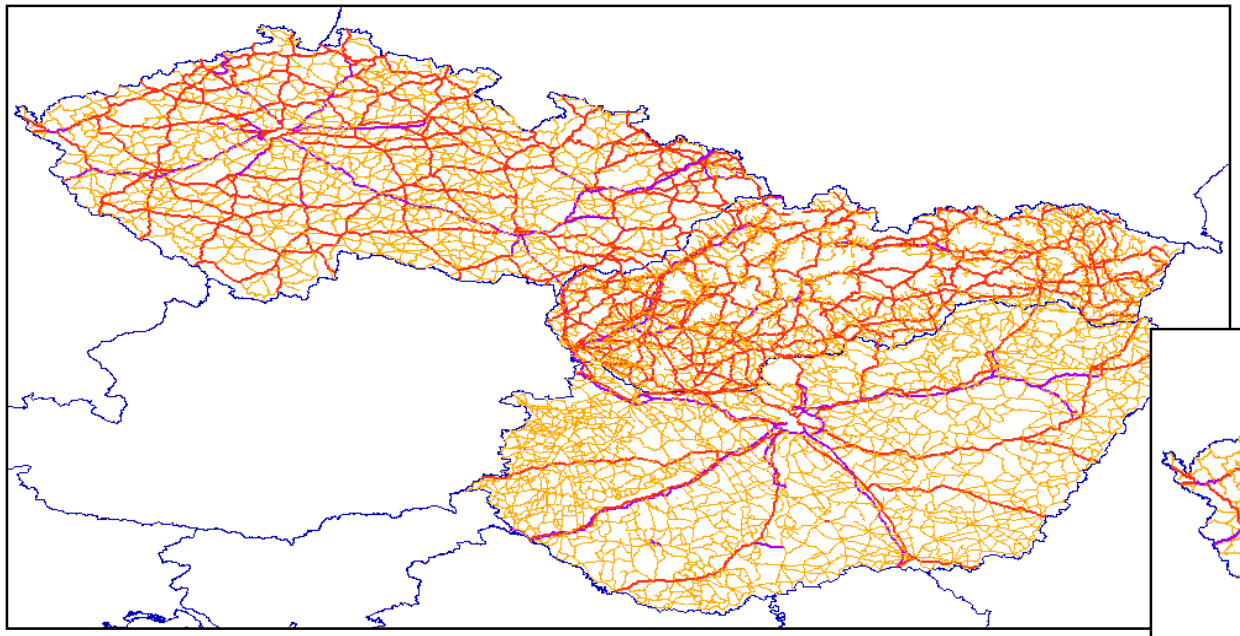
2.3 Edge-matching

- Use of
  - Connecting features
  - Agreed international boundaries
- Pros
  - Recodring edge matching case
  - No need of neigbouring data
- EM processing guidelines and specifications

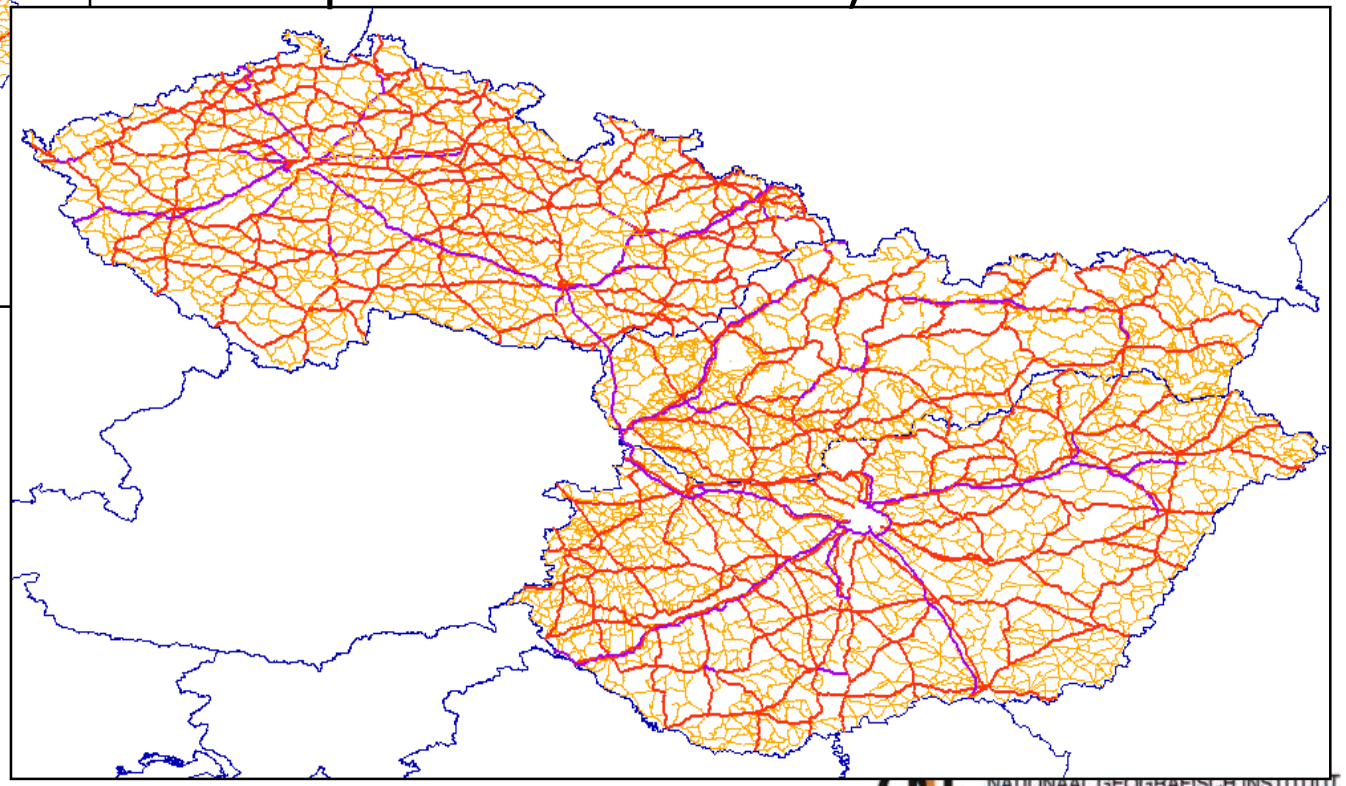


2.4 European wide codification



Roads classification (national criteria)

Roads classification for mapping purpose (European harmonisation)



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2.5 Pan-European features

- Definition: located on the international boundaries -> duplication
- Task: **unique feature**

Attributes	Values	
F_CODE	BH502	
FCsubtype	Watercourse	
HOC	Natural	
HydroID	E.EG.WATRCRS.000009	unique value (European Uid)
HYP	Perennial/Permanent	
ICC	DE#FR	Combined ICC Values (the feature belongs to two countries)
LDV	inDirection	
LEN	2.598898	
LOC	Fictious axis through water area	
NAMA1	Rhein	Name (in German) put into alphabetic order according to NLN attribute value
NAMA2	Le Rhin	Name (in French) put into alphabetic order according to NLN1 and NLN2 attribute value
NAMN1	Rhein	
NAMN2	Le Rhin	
NHI	20000000000000000000#A---	Combined national values (DE#FR)

combining national properties

unique geometry

A European UID

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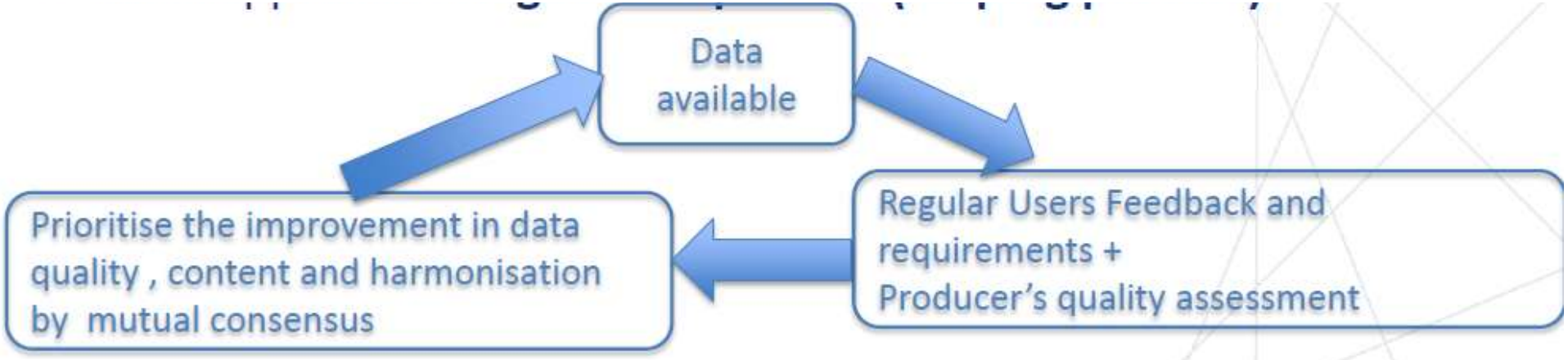
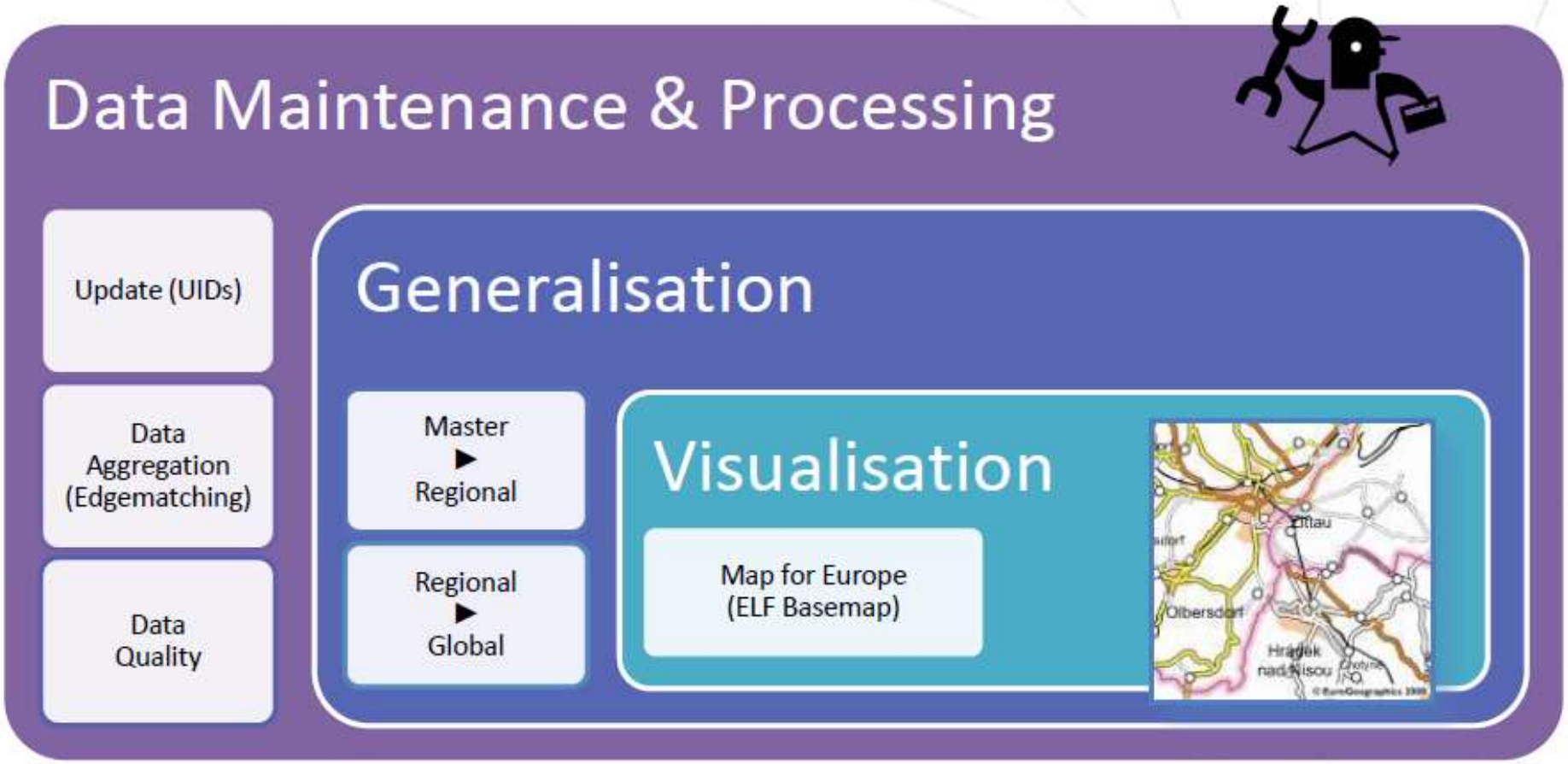
2.6 Meeting users needs: Users must contribut to the harmonisation process

- Identifying user needs from the beginning
- Prioritise the sectors and use cases (not too restrictive) and identify customers for dialoguing
- Approach: **Negociated process (looping process)**



- Time consuming (years) with sustainable data maintenance

3. ELF principles for providing better tools:
Data maintenance and processing guidelines



Using INSPIRE/GML standard,

3.1 Geo-processing guidelines and tools (test implementation)

Tools	Tool developers	Used Software
Data quality Validation	ESRI	ArcGIS
	1Spatial	1Spatial Cloud
	Delft University	prepair and pprepair
Change Detection	IGNF	C++ libraries
Edge-Matching	ESRI	ArcGIS
	1Spatial	Local installation of 1integrate with ELF Edge Matching Rules
	Delft University	prepair and pprepair
Generalization (Regional-Global)	IGNF	C++ programming based on IGN-F internal libraries
Generalization (master LoD1-master LoD2) Generic level	1Spatial	Local installation of 1Generalise with specific Flowline
	Delft University	tGAP builder (prototype implemented in Python)
	KadasterNL	ESRI ArcGIS
Transformation	Snowflake	GO Loader and GO Publisher

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3.2 Lessons learnt after test implementation

Gap between (complex) INSPIRE schemas and what current tools can support

1. Complexity of INSPIRE data schema (too advanced) fo easy transformation (Oracle, PostgreSQL, Geodatabase)
    - Used their own flattened rules for decoding INSPIRE/GML
    - Limited to simple features
    - Some applications(view, maps) require simple features.
2. Handling GML file size
3. Not so « easy going » at fisrt implementation

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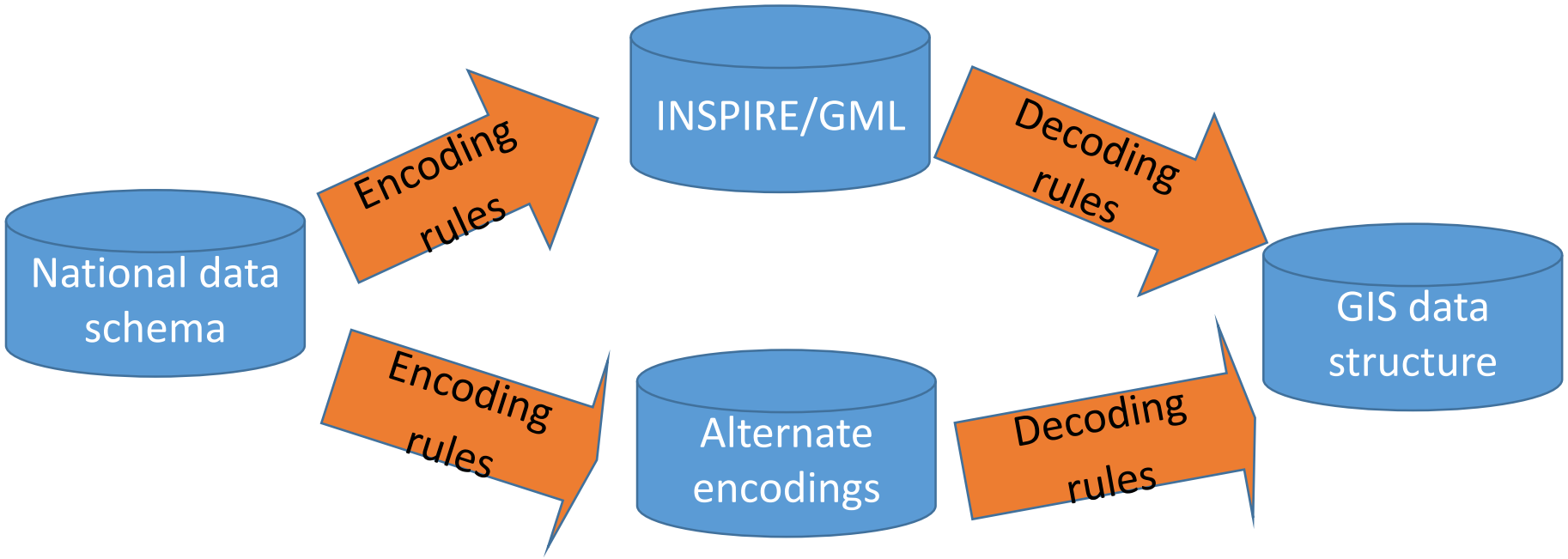
3.3 Which encoding rules for better data geo processing : discussion

Scenario 1: INSPIRE/GML is the obligated standard , pushing and support vendors for better use of INSPIRE/GML



Scenario 2: looking **to alternate encodings** with simplified flattened data structure (refer to MIG action 2017.2), already adpoted b
vendors

4. Conclusions

Better data :

- Data harmonisation should progress beyond INSPIRE, adopting a step by step approach in thethe level of interoperability

Better tools:

- Support vendors implementation by providing geo-processing guidelines and decoding rules
- Reduce the data schema complexity

Fit for purpose :

- Users are key stakeholders in the improvement

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