Cross-border data consistency ,
an INSPIREd first step to connect your country to cross-border digital economy.
Best practice examples from National Mapping Agencies

Nathalie Delattre (IGN Belgium), Pierre Vergez (IGN France)

INSPIRE Conference, Strasbourg 6-8 septembre 2017

Outline

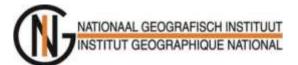| 1. The meaninfullness | 2. The EuroGeographics approach and solutions | 3. From theory to practice | 4. Applied processes for a common boundary | 5. Applied processes for edge-matching | 6. The message |

1. The cross-border meaningfullness

2. The EuroGeographics approach and solutions

3. From theory to practice

4. Applied processes for a common boundary

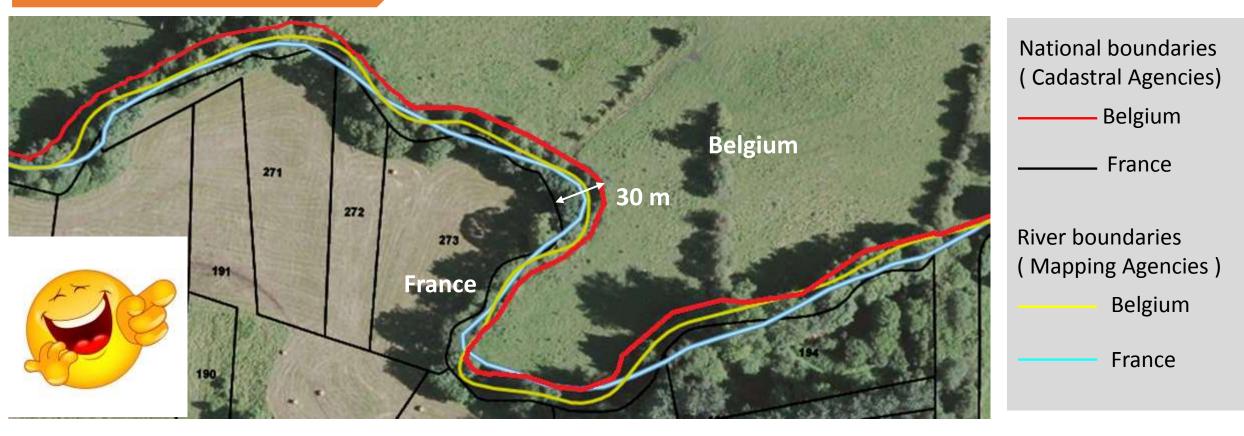5. Applied processes for edge-matching
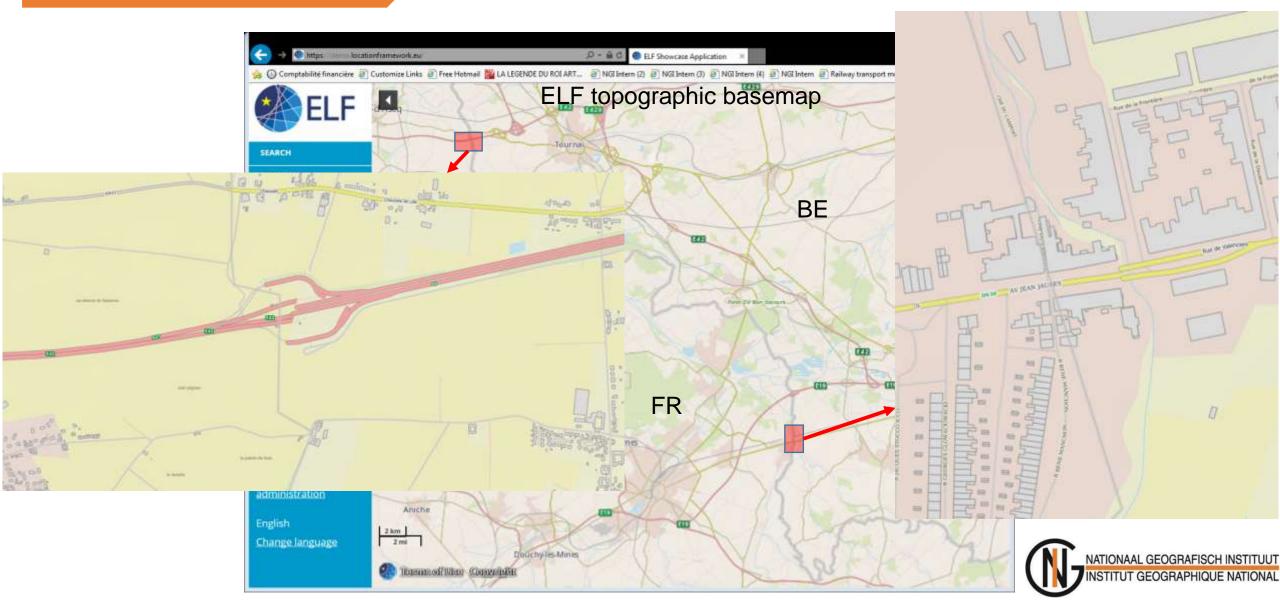
6. The message

1.1 Common boundaries, you mean?

INSPIRE Directive Article 10.2 : Data Interoperability across Boundaries

1.2 Cross-border digital data, you mean?

1. The meaninfullness

ELF topographic basemap

BE

FR

2.1 Common International « Borders » at Different LoDs

Level of detail	Scale	Type of data (accuracy)	Kind of agreement	realisation	Availability
Treaty level	Cadastral resolution	High precision,	Legally defined boundaries	**SBE project** (long term goal)	Starting
Master	1:10k to 1:50k	From cadastral or master national datasets	Technical compromise , **border depiction** adapted to the LoD	**ELF IB Master**	Starting
Regional	1:100k to 1:250k	From pan European datasets : EuroRegionalMap and EuroBoundaryMap		**ELF IB Regional**	Nearly available for all countries , **restricted access**
Global	1:500k to 1:2M	EuroGlobalMap	Generalised from ELF IB Regional	**ELF IB Global**	Available for all countries; **public access**

Activities split

2.2 Set up Connecting Features (CFs)

- Point or line

- Located on boundaries

- Set up at different LoD

💧	springs
▬	watercourses
⬤	point connecting features
▬	line connecting features
▬	agreed state boundaries
▬	Lake/Pond

2.3 Data Model INSPIRE Compliant

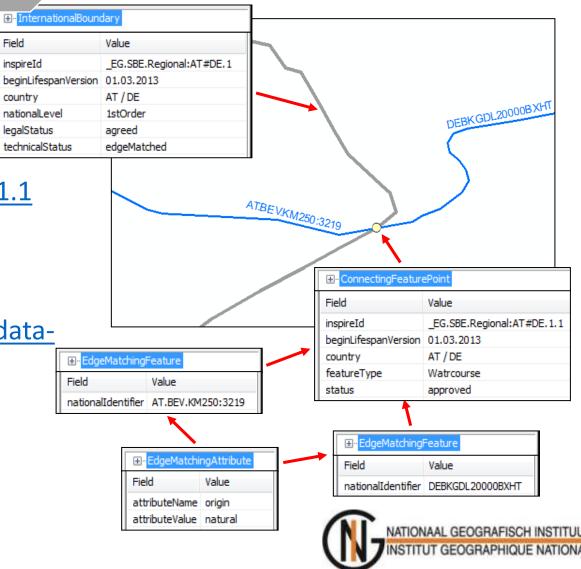- ELF IB data model specifications + Application Schemas GML

at:
http://elfproject.eu/documentation/specification/ib/1.1

- Edge-Matching Technical guidelines and Evaluation rules (docs)

at:http://elfproject.eu/documentation/specification/data-maintenance-and-processing

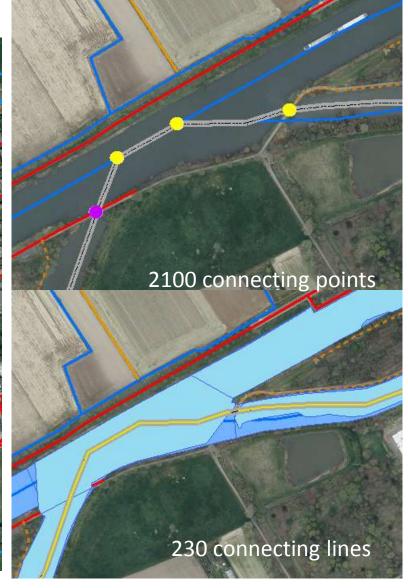- ELF EM Tools (testbed) by 1Spatial (1Integrate)

     restricted access

InternationalBoundary

Field	Value
inspireId	_EG.SBE.Regional:AT#DE.1
beginLifespanVersion	01.03.2013
country	AT / DE
nationalLevel	1stOrder
legalStatus	agreed
technicalStatus	edgeMatched

DEBKGDL20000BXHT

AT.BEV.KM250:3219

ConnectingFeaturePoint

Field	Value
inspireId	_EG.SBE.Regional:AT#DE.1.1
beginLifespanVersion	01.03.2013
country	AT / DE
featureType	Watrcourse
status	approved

EdgeMatchingFeature

Field	Value
nationalIdentifier	AT.BEV.KM250:3219

EdgeMatchingFeature

Field	Value
nationalIdentifier	DEBKGDL20000BXHT

EdgeMatchingAttribute

Field	Value
attributeName	origin
attributeValue	natural

NATIONAAL GEOGRAFISCH INSTITUUT
INSTITUT GEOGRAPHIQUE NATIONAL

3.1 Best Practices Examples BE/FR

- to agree on a common depiction of the State Borders at master level (ELF IB master)

- to edge match the national master data bases at 1:10 000 scale for
  - Hydrography (HY),
  - Transport (TN)
  - Buildings (BU)

- Start 2016
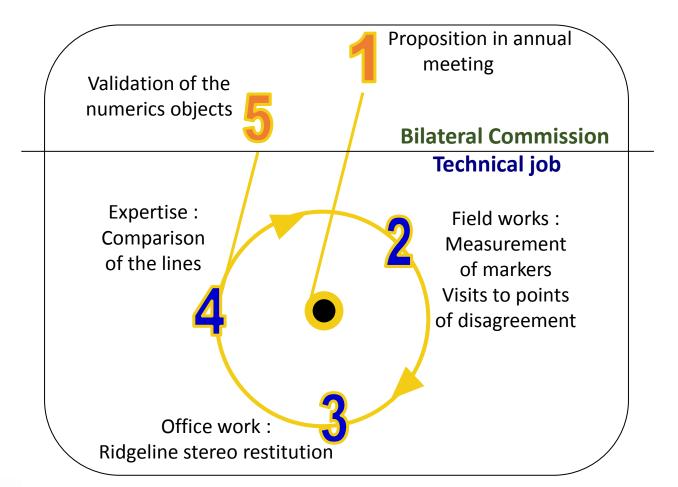
- 2017 (first results with point CFs)

France –Belgium border 620km

2100 connecting points

230 connecting lines

NATIONAAL GEOGRAFISCH INSTITUUT
INSTITUT GEOGRAPHIQUE NATIONAL

4.1 From Technical to Juridical Agreement

1 Proposition in annual meeting

Validation of the numerics objects

5

Bilateral Commission

Technical job

Expertise : Comparison of the lines

4

2 Field works : Measurement of markers Visits to points of disagreement

3 Office work : Ridgeline stereo restitution

Validation type of agreement

0) Dispute area

1) Technical agreement

2) Bilateral juridical agreement

3) Geodata & bilateral cadastres OK

4.2 Shared Lines in ELF Database

Edge-matching on going (Belgium and Spain)

Technical agreement

Juridical validation

Postponed => 2 lines

Temporary solutions

2015 Belgium

2015 Luxembourg

Germany *2015*

Swiss *2017-2018*

Italy *2015* *2016*

Spain *2015*

2017 Andorra

4.3 What's a ¦Temporary¦ Solution ?

Agreement with scheduled actions

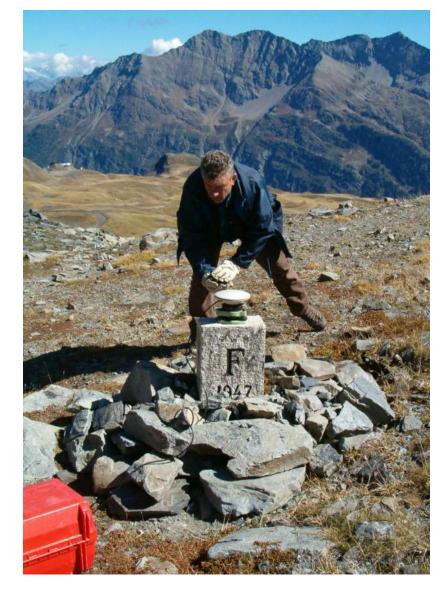- Ex : take time to measure the marks

- Ex : waiting for better ortho

Technical agreement better than intermediate solutions

⟹ List a count of the gap discrepancies
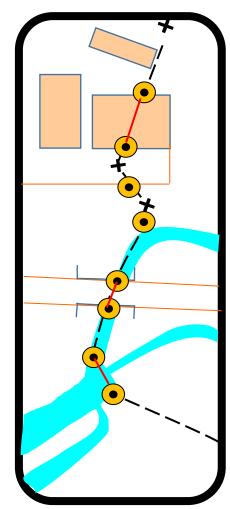
and balance the distribution of compromise

France - Belgium

620 km

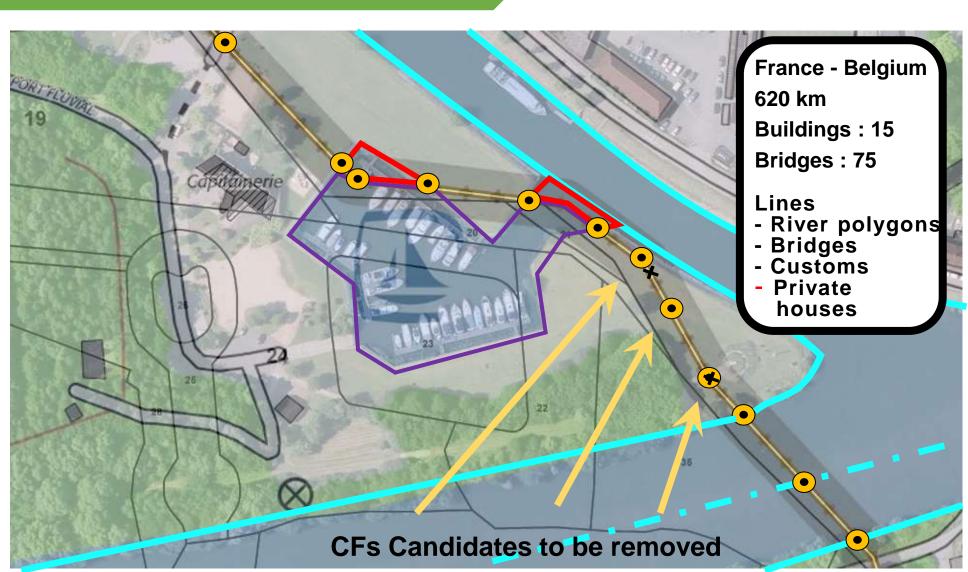**Buildings : 15**

Bridges : 75

Lines
- **River polygons**
- **Bridges**
- **Customs**
- **Private houses**

CFs Candidates to be removed

⊙ : CFs Candidates

✗ : Boundary Marks

5.2 Edge Matching : Braided Geometry

2 options :

1.Adopt a single line (a process for improvment has to be considered)

2. Remove the candidate CF along the line

5.3 Edge Matching : Organisational Process

BOUNDARY UPDATE MANAGMENT for France

- Modifications of the line in the source database   case of   **Agreed line = National line**

- Annual national update

(displayed 3 months later in portals)

- Delivered to ELF platform

EDGEMATCHING

- Extraction for comparison
  - Connecting features
  - Neighboring objects
  - Single shared line

- Negociation and geometry change proposals

- Updates in source database

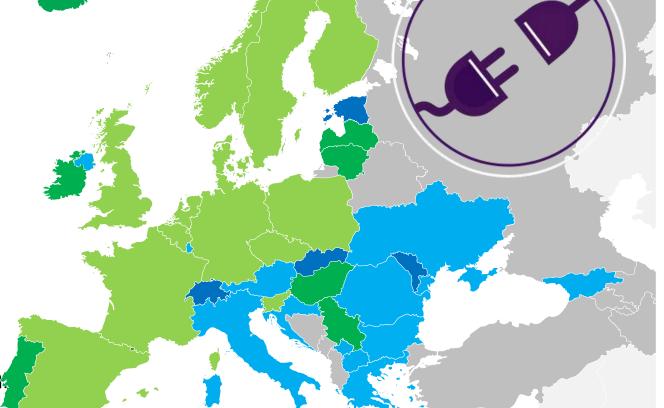resolved case with Connecting features

6.1 A Plugin Outlet

ELF Data Providers in 2016/17

🟩	partner countries (13)
🟩	new partners since 2016
🟦	out of project but providers (4)
🟦	contributers with ERM,EGM,EBM
⬜	Eurogeographics members but not ELF yet

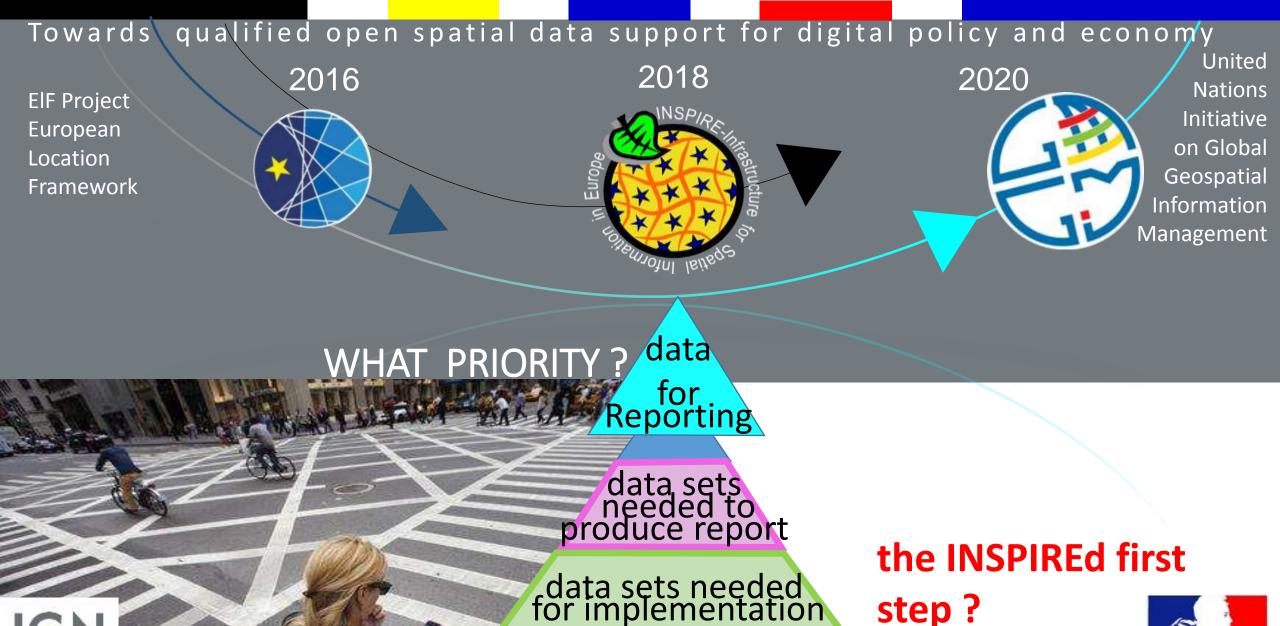**ELF** EUROPEAN LOCATION FRAMEWORK

A plugin outlet for matching and extension

ELF platform aims at supporting the digital transformation of the society

Towards an European set of connected data from NMCAs enabling

pan-European (public or private) applications

Towards qualified open spatial data support for digital policy and economy

2016

2018

2020

EIF Project
European
Location
Framework

INSPIRE-Infrastructure for Spatial Information in Europe

United
Nations
Initiative
on Global
Geospatial
Information
Management

WHAT PRIORITY ?

data
for
Reporting

data sets
needed to
produce report

data sets needed
for implementation

Cross border data sets

the INSPIREd first
step ?

IGN
INSTITUT NATIONAL
DE L'INFORMATION
GÉOGRAPHIQUE
ET FORESTIÈRE

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE
CNIG

www.eurogeographics.org

http://www.locationframework.eu/

Contact:
Pierre Vergez:
Chargé de mission CNIG et frontières

IGN France
Email: *pierre.vergez@ign.fr*

Contact:
Nathalie Delattre :
INSPIRE programme manager, ELF team member
IGN Belgium
Email: *nathalie.delattre@ngi.be*