ELF EUROPEAN LOCATION FRAMEWORK

The European Location Framework (ELF) Project – One Source for Reference Geo-Information for Europe

Presentation to: Geodata on the Web seminar 2016

By: Dorus Kruse, Workpackage 4 leader ELF

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the Competitiveness and Innovation framework Programme (CIP)
ICT Policy Support Programme (PSP) Call 6 Grant 325140

Goal:

- ★ Showing that the NMCAs can contribute to – or, make - a real European SDI
- ★ Showing how government, industry and academia can work together
- ★ Thus, demonstrating what a region can achieve when co-operating and interoperating
- ★ Pointing forward to a global geospatial information management

Where we want to go with this project

Today

-Access to NSDI data is mostly national

-Only global players provide easy access to geographic data

-NSDI data is not used for the European policy decision making

-use of INSPIRE data services is ?

-common tools not co-ordinated

After

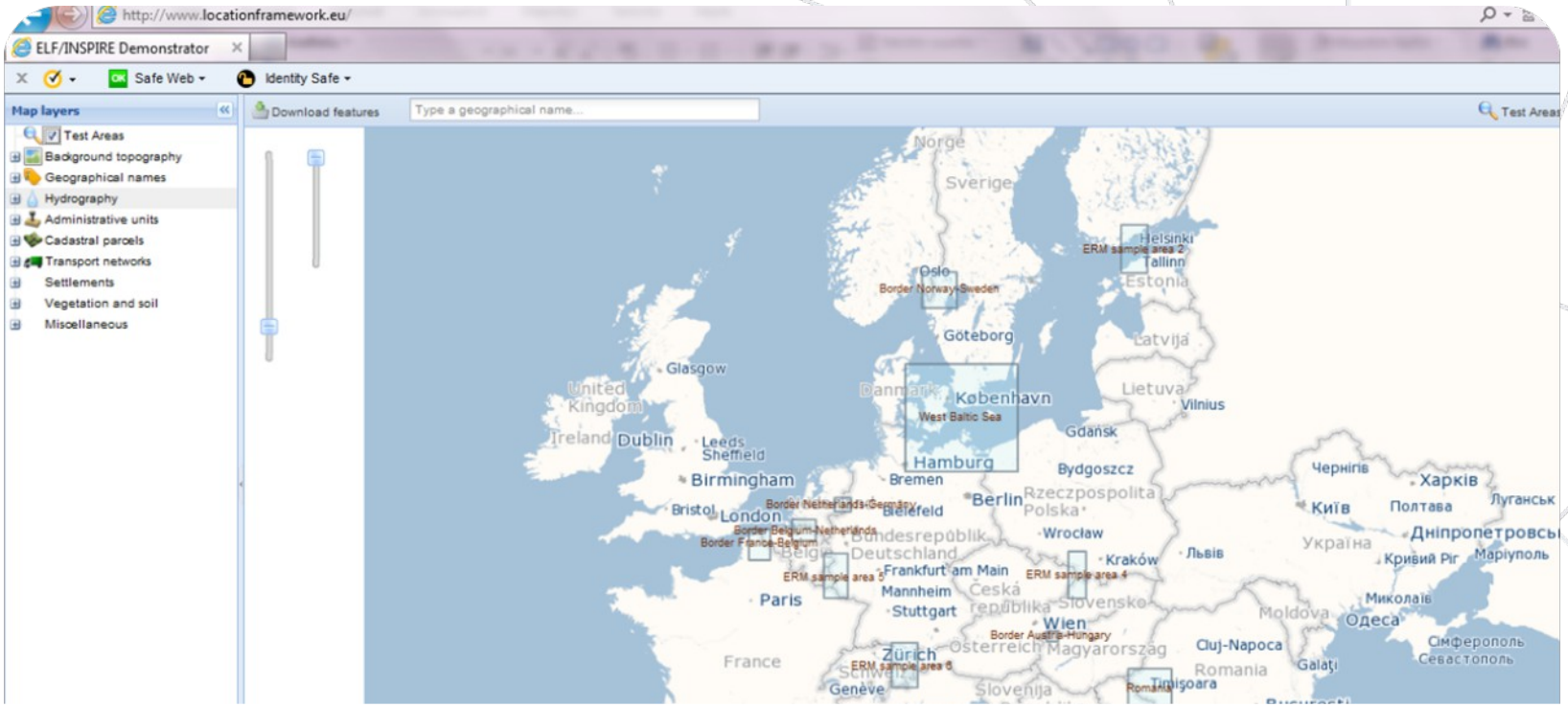
-Access possible for National, European and Global use (ELF platform)

-SME (small/medium enterprises) applications easy to connect

-Authoritative NSDI data is used for European policy decision making

-INSPIRE services utilized

-Common tools



Best practice ESDIN

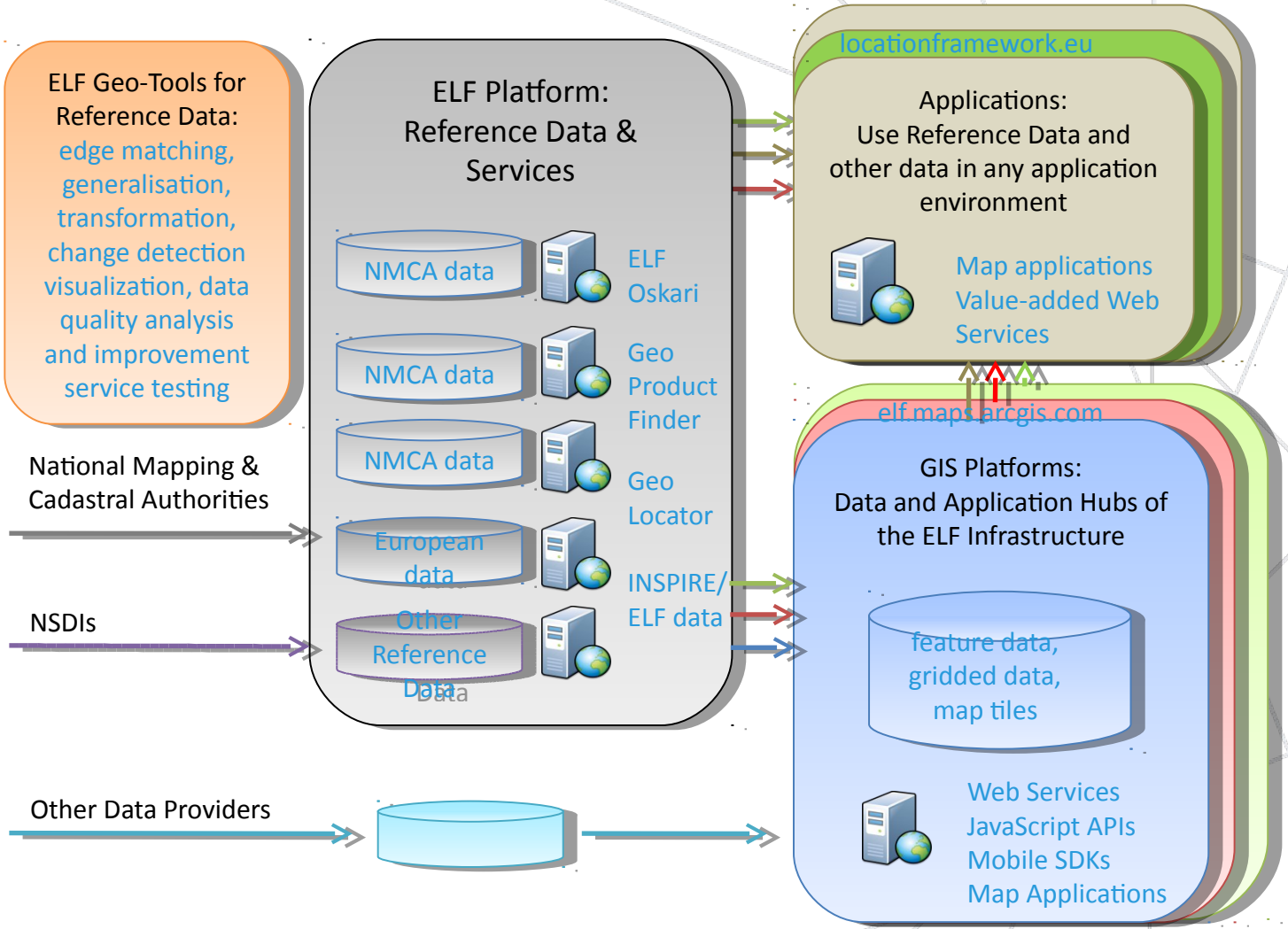
www.locationframework.eu

ELF project in a nutshell

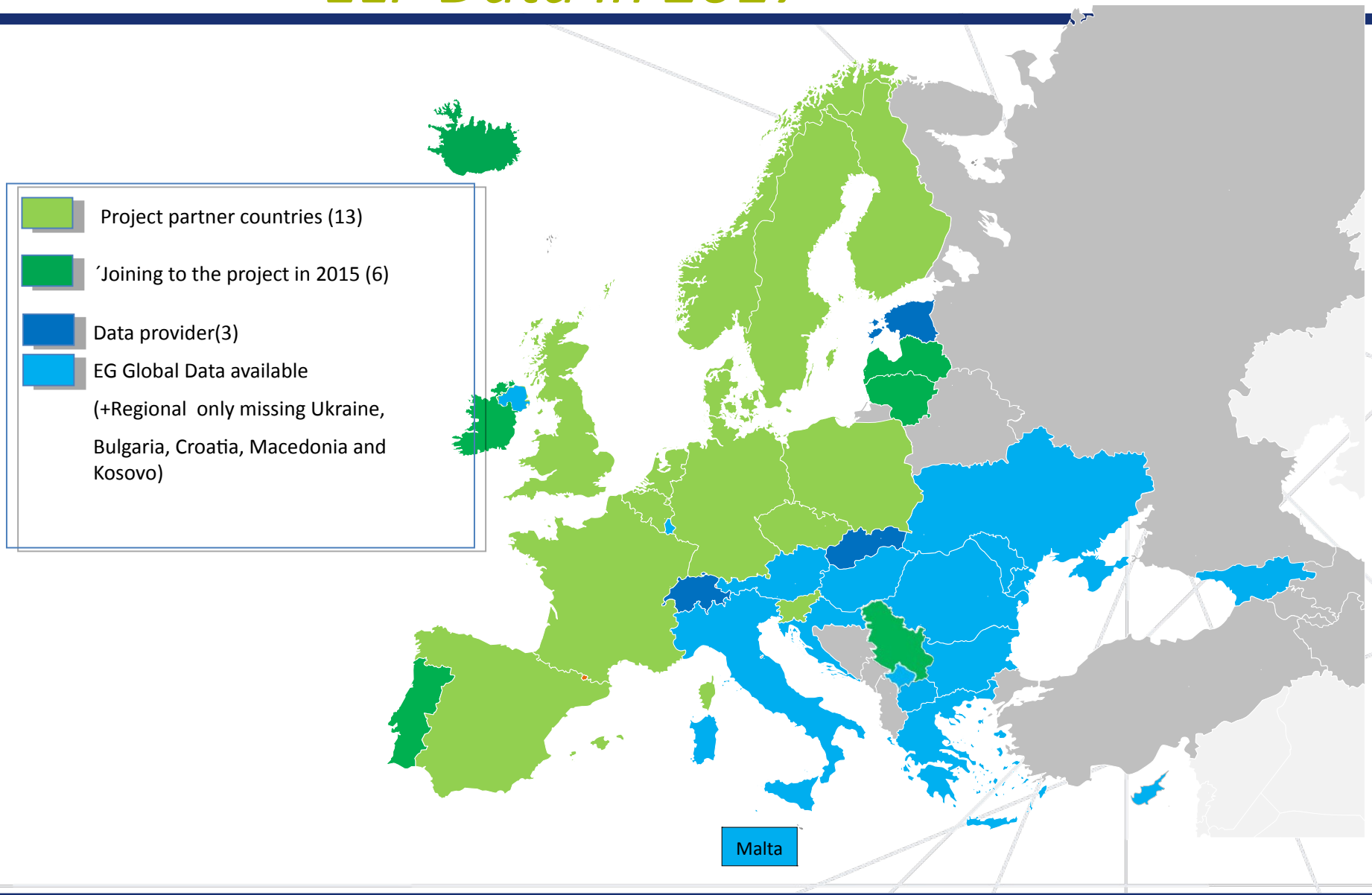
- 30 partners, 13 National Mapping Authorities + 10 more joined in 2016
- 19 countries
- Part funded by the ICT-PSP budget , 13 million euro
- Runs between 3/2013 - 3/2016 (11/2016 extension accepted)
- To deliver the European Location Framework (ELF) required to provide up-to-date, authoritative, interoperable, cross-border, reference geo-information for use by the European public and private sectors

www.elfproject.eu

ELF Components



ELF Data in 2017



What benefits does ELF provide?

- Creates business opportunities in Europe (startups, application developers, SMEs)
- Linking national INSPIRE services through ELF
- edgematching, combined services, access to services, licences, open data…
- Use ELF nationally when needed to use similar data from other countries e.g. Cross border security, migration trends, etc.
- Improves interoperability and quality of Public Sector Information
- ELF is already in the pre-operational phase (Applications using it already developed and extension for more applications will start 2016)

Implementation of the GEO tools

Provide geo-tools for use within NMCAs;

- ★ 1. Transformation
- ★ 2. Data Quality Validation
- ★ 3. Generalisation
- ★ 4. Edge Matching
- ★ 5. Visualisation
- ★ 6. Change Detection

Provide a Geo Product Finder tool for the public

Tools:

Table Joining Service

Data Quality Validation Tools:

- 1Validate by 1Spatial
- ArcGIS Data reviewer by Esri
- Pprepair by Delft University

Edge Matching Tools:

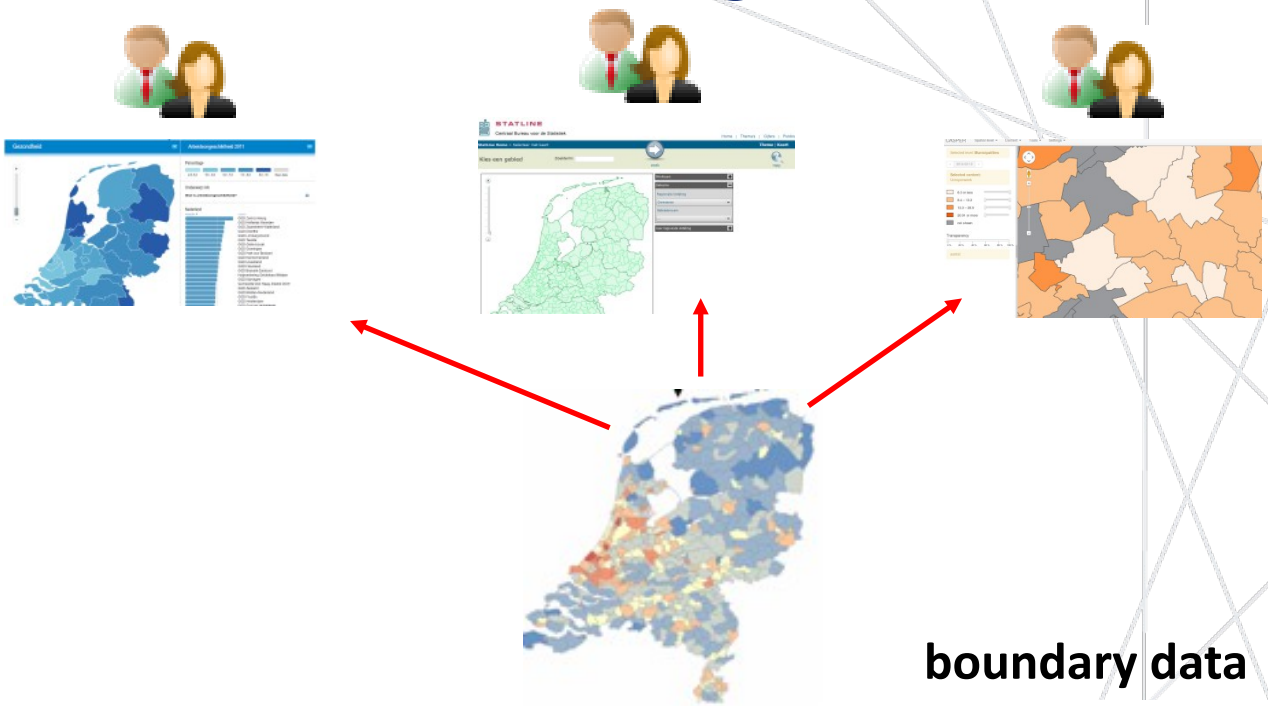
- 1Integrate by 1Spatial
- ArcGIS Data reviewer by Esri
- Pprepair by Delft University

Implementation of ELF Table Joining Service

and health statistics

- Table Joining Service developed by Kadaster Netherlands and Geonovum Netherlands
- Client developed by Geodatic Institute of Slovenia

ELF Table Joining Service



tabular data

pc4	wpld	woonplaats	adressen	gemeente
5371	3254	Ravenstein	1469	Oss
5371	3256	Deursen-Dennenburg	231	Oss
5371	3257	Huisseling	188	Oss
5371	3263	Overlangel	187	Oss
5371	3259	Dieden	79	Oss
5371	3262	Neerloon	78	Oss
5371	3260	Demen	74	Oss
5371	3261	Neerlangel	28	Oss
5371	3264	Keent	22	Oss

boundary data

ELF Table Joining Service

boundary data

tabular data

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TJS

the Competitiveness and Innovation framework Programme (CIP)
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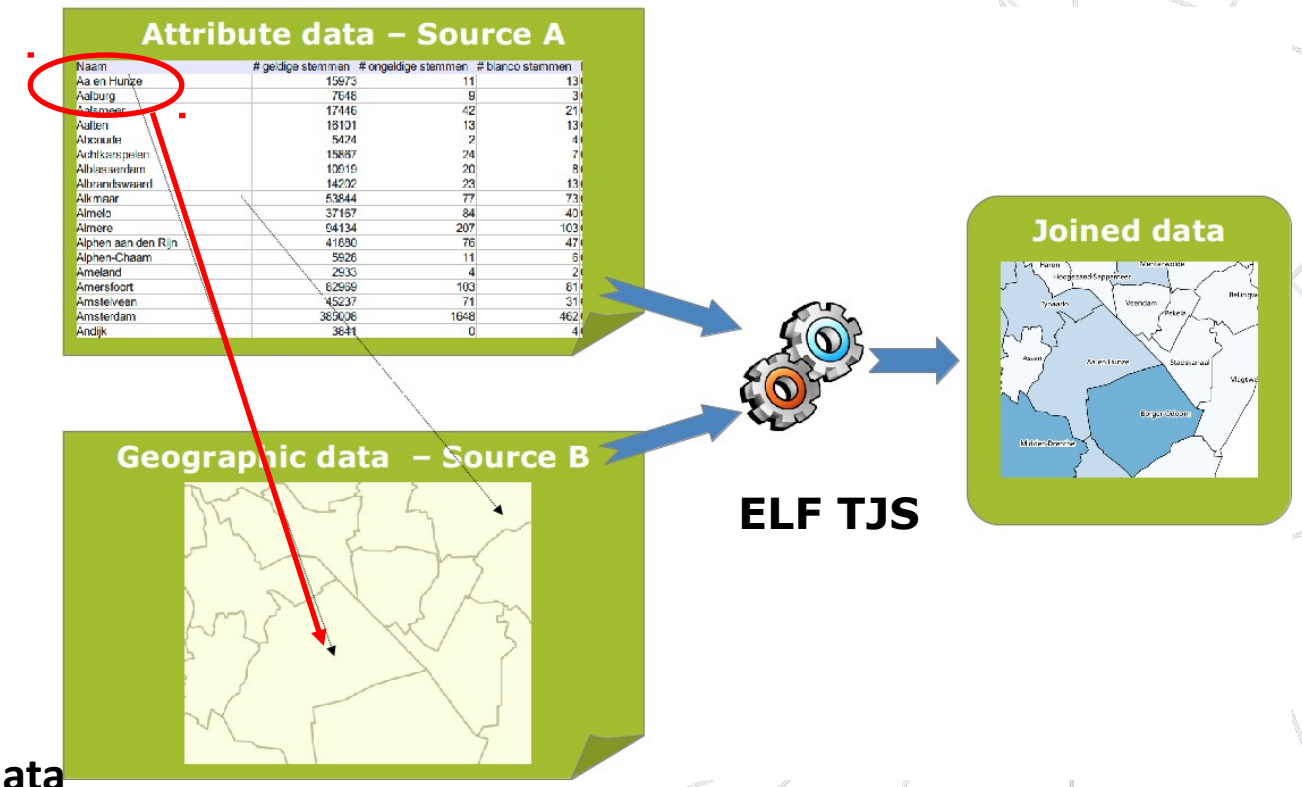
ELF Table Joining Service

Table joining (service) and unique id's (keys)

tabular data

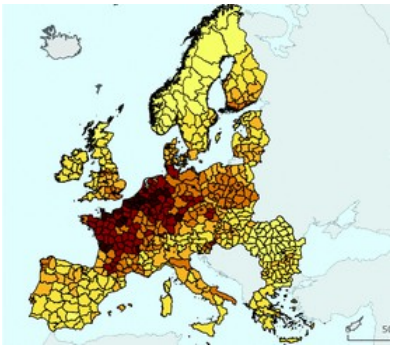
Unique id's (keys)



boundary data

The implementation for Health statistics

Case regional health statisticsEurostat's health statistics (>300 tables)



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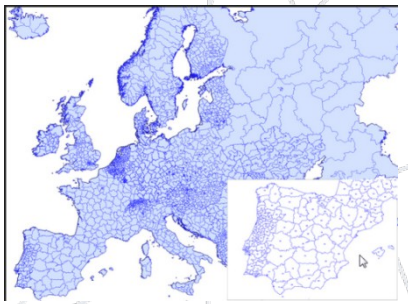
Eurostat's health statistics

(>300 tables)

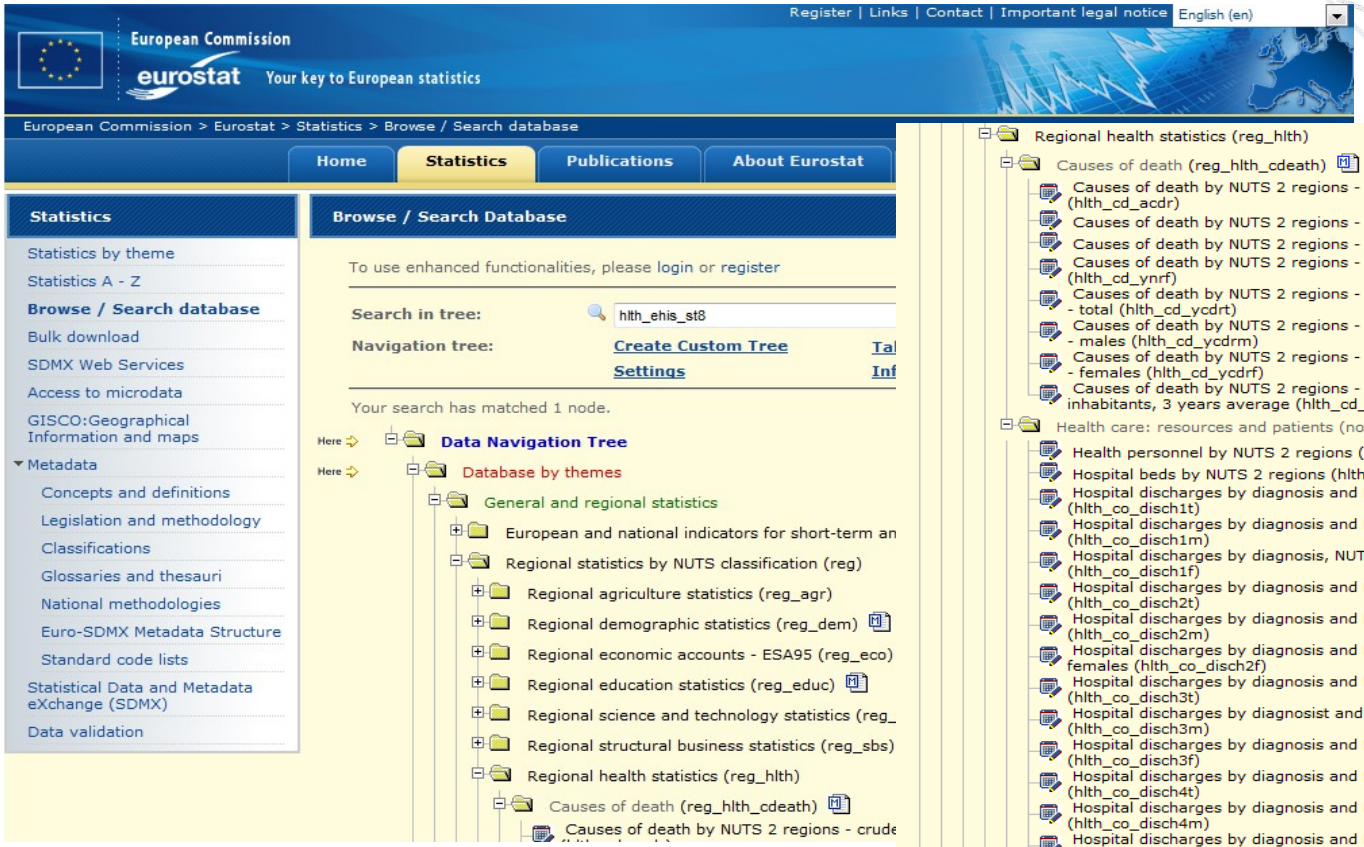
TJS



EuroboundaryMap

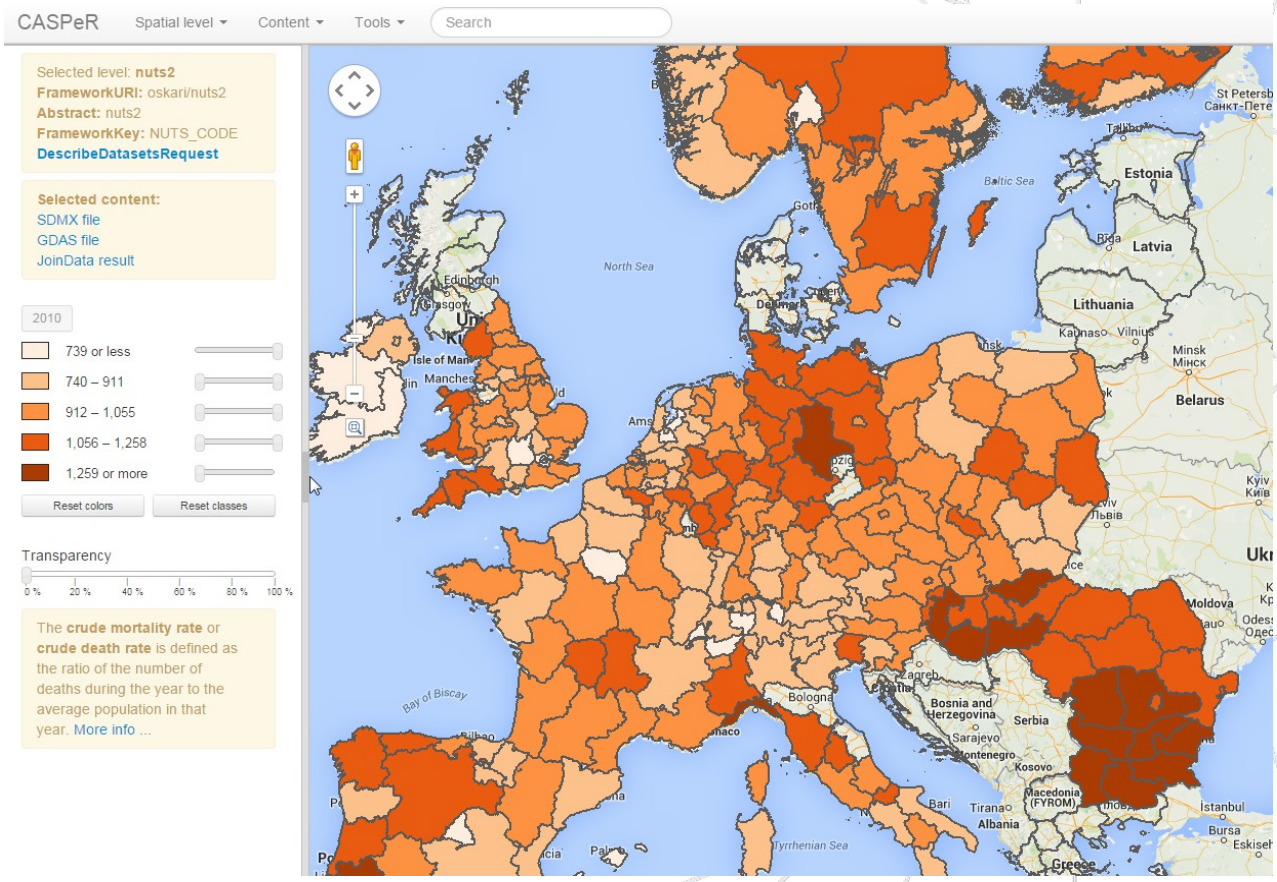
The implementation for Health statistics

Regional health statistics at EUROSTAT (>300 tables)



The implementation for Health statistics

Client



Data Quality Validation tool (1Spatial):

- 1Spatial Cloud is an easy to use Commercial Off The Shelf (COTS) application in the cloud
- Enables ELF partners to provide authoritative, accurate and harmonized data to the project
- Preconfigured data quality tool to enable users to validate and accredited their data against the ELF data quality rules
- No deployment, set-up or infrastructure costs
- Compatible with ELF geo tools exchange format

4 Easy Steps to Data Quality

Uploads ELF compliant GML files

- Select the zipped GML files for importing and select upload

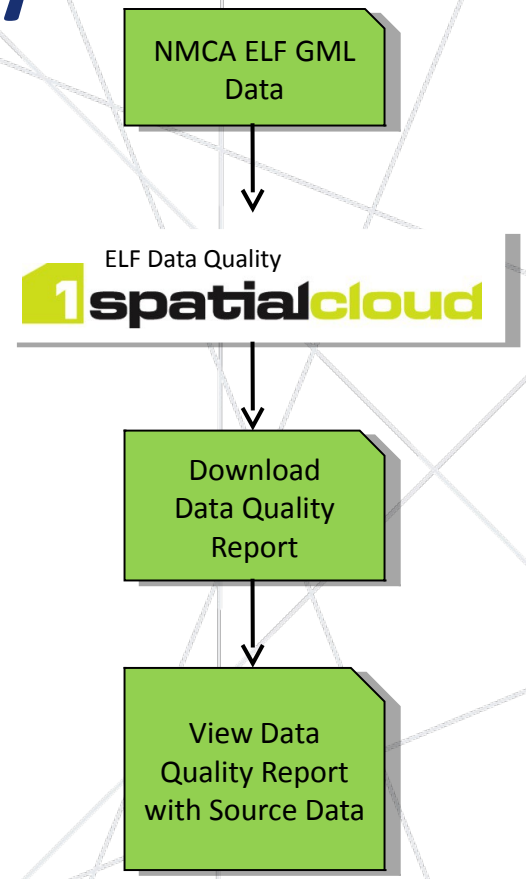
Start the validation

- Select the ELF Data Quality Rule-set and press Validate

Review Data Quality Report

- Quality metrics reported in progress panel
- Data Quality report available to download

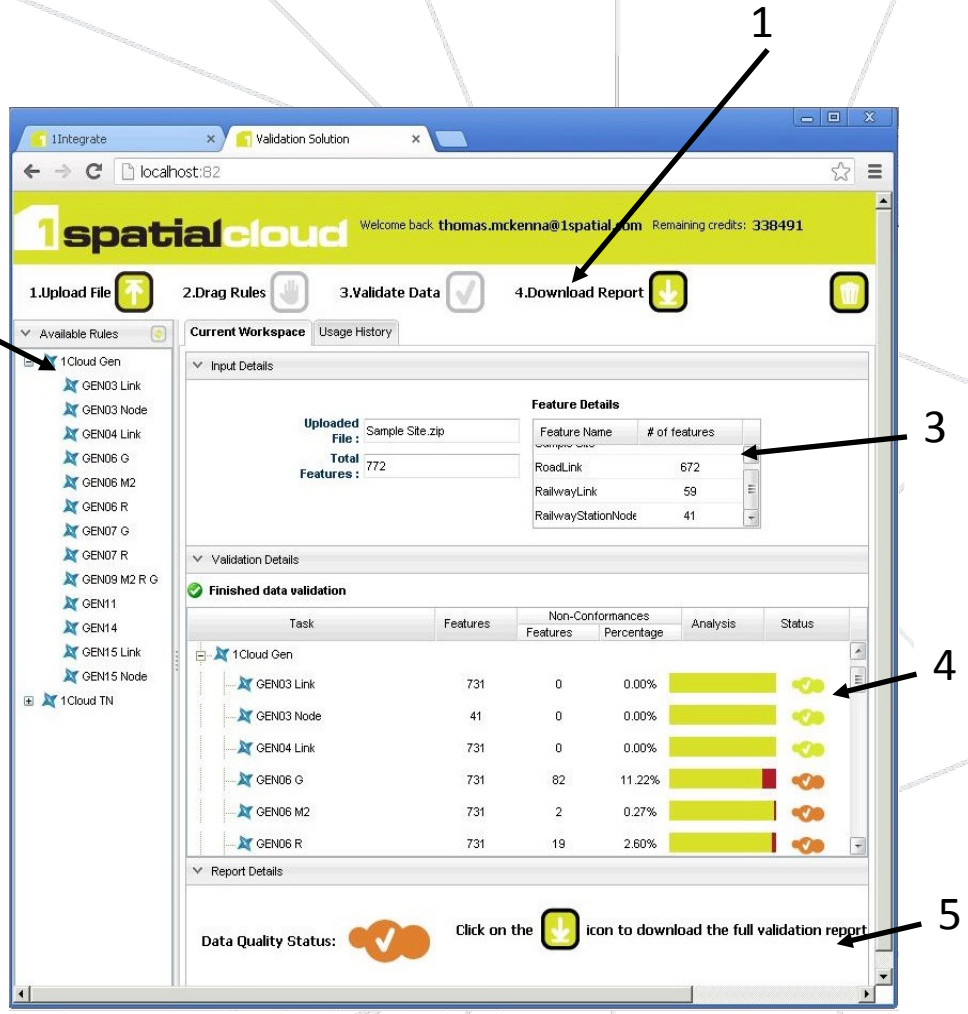
Reviewing results using your chosen GIS editor/browser.



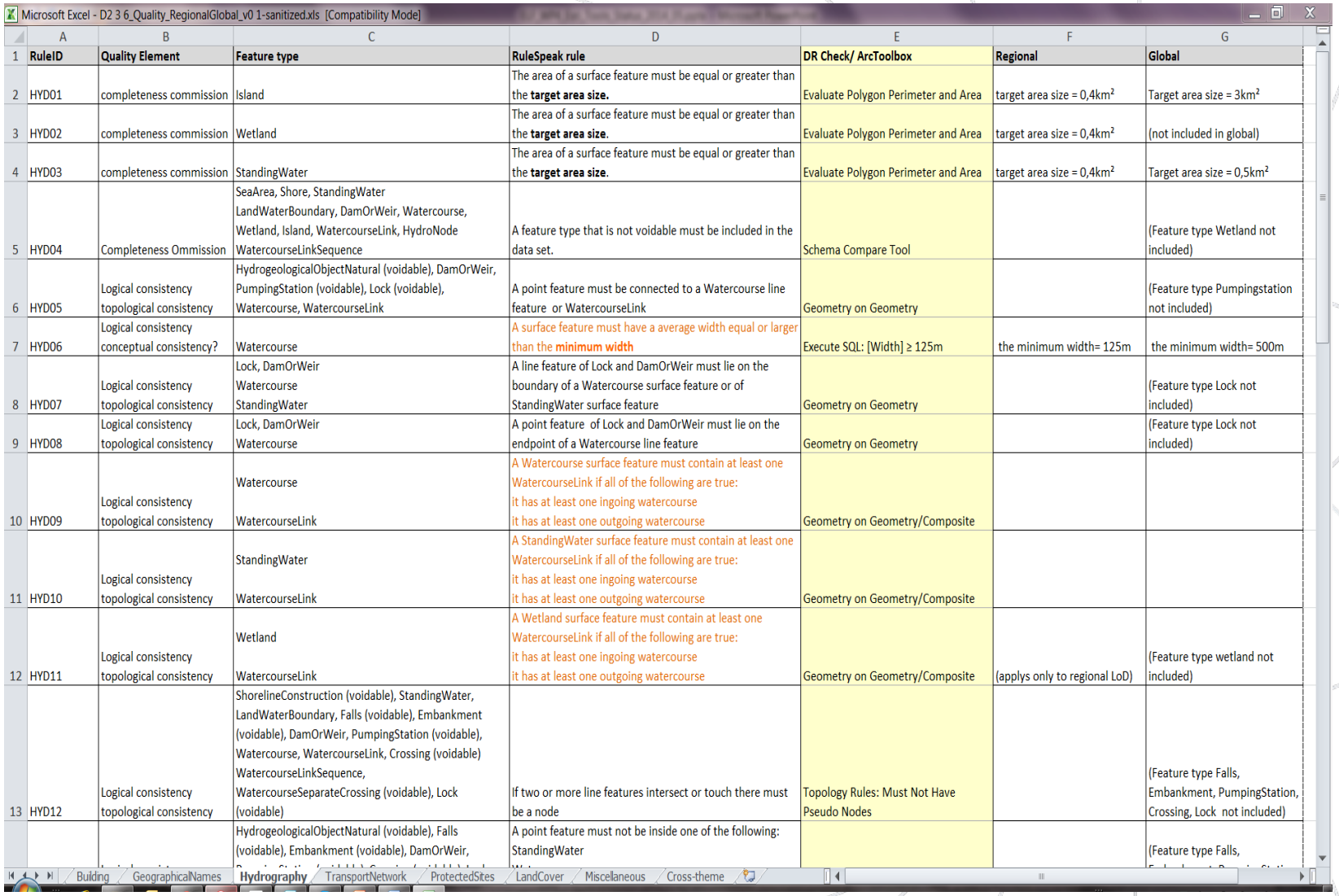
1SpatialCloud

The site has five main panels:

1. Action panel, has buttons that control the validation process
2. Available Rule panel, contains a tree of the available rules sets
3. Input Details panel, summarizes the data that is being validated
4. Progress panel, shows validation process progress and results
5. Report Details panel, allows user to download detailed results as a Shape file



RuleSpeak to Reviewer Check



Microsoft Excel - D2 3 6_Quality_RegionalGlobal_v0 1-sanitized.xls [Compatibility Mode]

	A	B	C	D	E	F	G
1	**RuleID**	**Quality Element**	**Feature type**	**RuleSpeak rule**	**DR Check/ ArcToolbox**	**Regional**	**Global**
2	HYD01	completeness commission	Island	The area of a surface feature must be equal or greater than the **target area size.**	Evaluate Polygon Perimeter and Area	target area size = 0,4km²	Target area size = 3km²
3	HYD02	completeness commission	Wetland	The area of a surface feature must be equal or greater than the **target area size.**	Evaluate Polygon Perimeter and Area	target area size = 0,4km²	(not included in global)
4	HYD03	completeness commission	StandingWater	The area of a surface feature must be equal or greater than the **target area size.**	Evaluate Polygon Perimeter and Area	target area size = 0,4km²	Target area size = 0,5km²
5	HYD04	Completeness Ommission	SeaArea, Shore, StandingWater LandWaterBoundary, DamOrWeir, Watercourse, Wetland, Island, WatercourseLink, HydroNode WatercourseLinkSequence	A feature type that is not voidable must be included in the data set.	Schema Compare Tool		(Feature type Wetland not included)
6	HYD05	Logical consistency topological consistency	HydrogeologicalObjectNatural (voidable), DamOrWeir, PumpingStation (voidable), Lock (voidable), Watercourse, WatercourseLink	A point feature must be connected to a Watercourse line feature or WatercourseLink	Geometry on Geometry		(Feature type Pumpingstation not included)
7	HYD06	Logical consistency conceptual consistency?	Watercourse	A surface feature must have a average width equal or larger than the **minimum width**	Execute SQL: [Width] ≥ 125m	the minimum width= 125m	the minimum width= 500m
8	HYD07	Logical consistency topological consistency	Lock, DamOrWeir Watercourse StandingWater	A line feature of Lock and DamOrWeir must lie on the boundary of a Watercourse surface feature or of StandingWater surface feature	Geometry on Geometry		(Feature type Lock not included)
9	HYD08	Logical consistency topological consistency	Lock, DamOrWeir Watercourse	A point feature of Lock and DamOrWeir must lie on the endpoint of a Watercourse line feature	Geometry on Geometry		(Feature type Lock not included)
10	HYD09	Logical consistency topological consistency	Watercourse WatercourseLink	A Watercourse surface feature must contain at least one WatercourseLink if all of the following are true: it has at least one ingoing watercourse it has at least one outgoing watercourse	Geometry on Geometry/Composite		
11	HYD10	Logical consistency topological consistency	StandingWater WatercourseLink	A StandingWater surface feature must contain at least one WatercourseLink if all of the following are true: it has at least one ingoing watercourse it has at least one outgoing watercourse	Geometry on Geometry/Composite		
12	HYD11	Logical consistency topological consistency	Wetland WatercourseLink	A Wetland surface feature must contain at least one WatercourseLink if all of the following are true: it has at least one ingoing watercourse it has at least one outgoing watercourse	Geometry on Geometry/Composite	(applys only to regional LoD)	(Feature type wetland not included)
13	HYD12	Logical consistency topological consistency	ShorelineConstruction (voidable), StandingWater, LandWaterBoundary, Falls (voidable), Embankment (voidable), DamOrWeir, PumpingStation (voidable), Watercourse, WatercourseLink, Crossing (voidable) WatercourseLinkSequence, WatercourseSeparateCrossing (voidable), Lock (voidable)	If two or more line features intersect or touch there must be a node	Topology Rules: Must Not Have Pseudo Nodes		(Feature type Falls, Embankment, PumpingStation, Crossing, Lock not included)
			HydrogeologicalObjectNatural (voidable), Falls (voidable), Embankment (voidable), DamOrWeir,	A point feature must not be inside one of the following: StandingWater			(Feature type Falls,

Building | GeographicalNames | Hydrography | TransportNetwork | ProtectedSites | LandCover | Miscellaneous | Cross-theme

PPrepair: Geometric data quality & edge-matching

Technische Universiteit Delft

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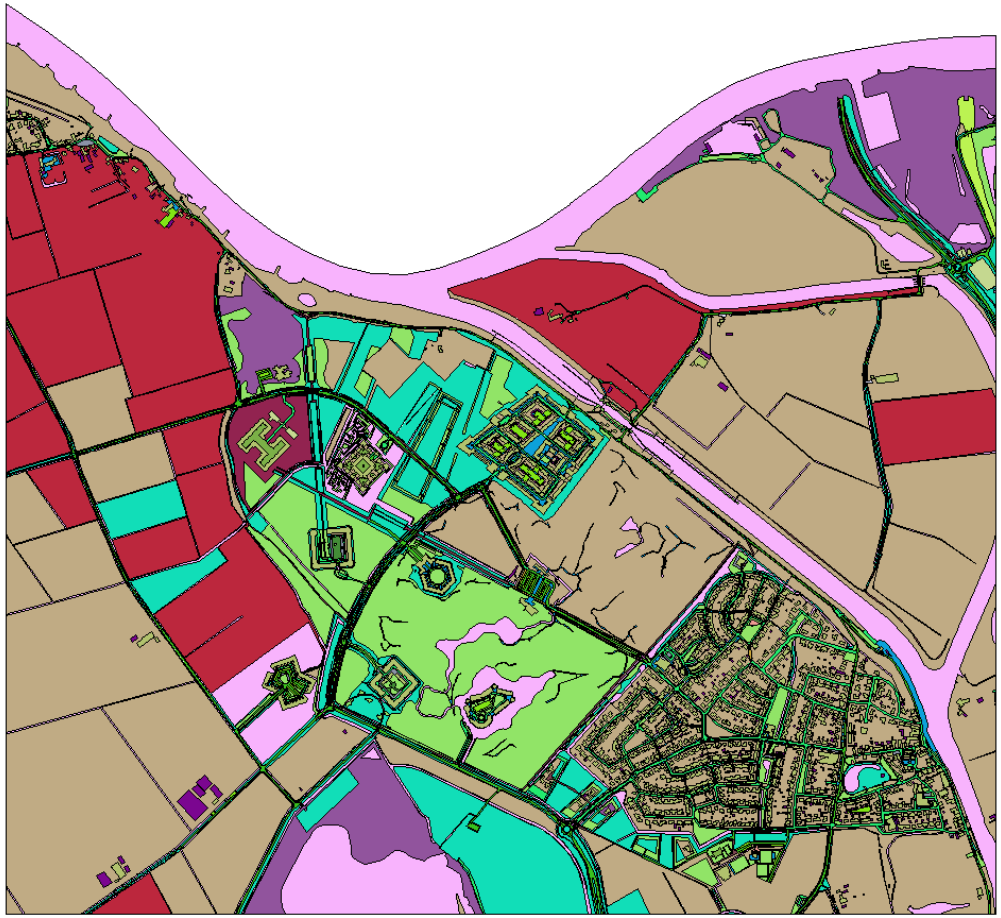
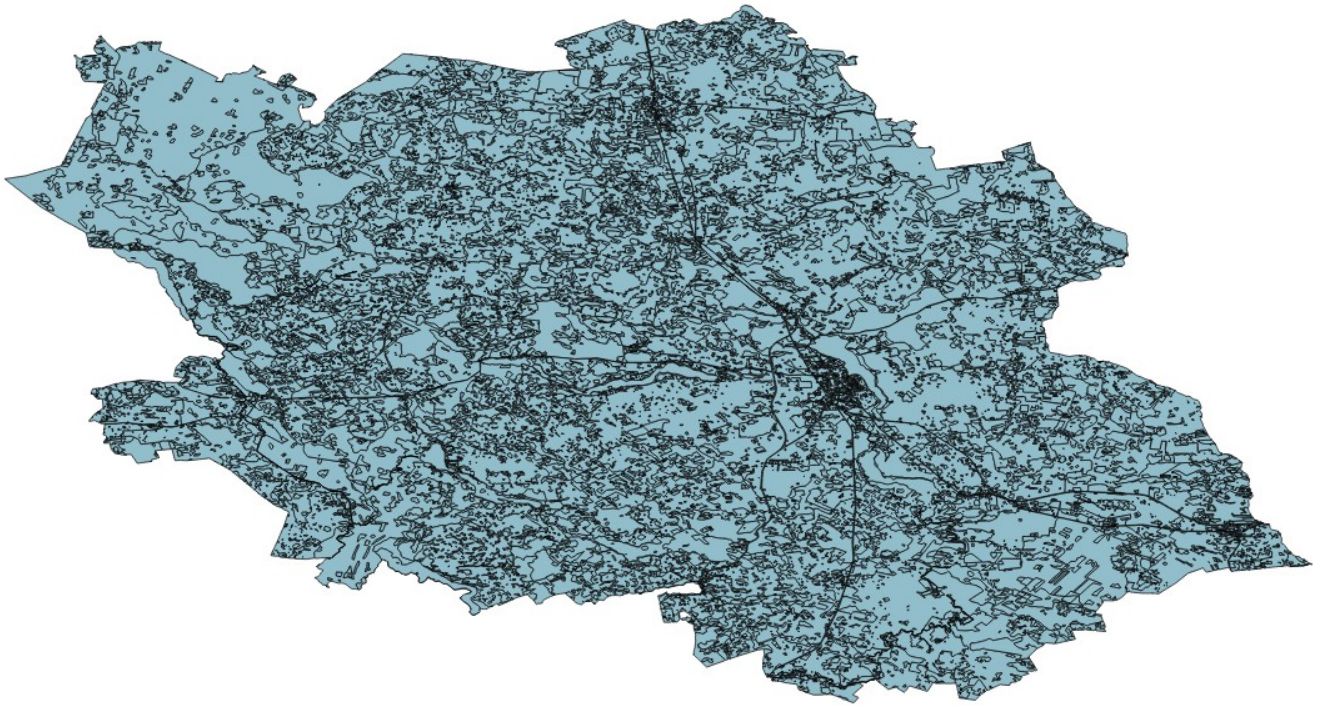
What functionality?

Gaps and overlaps in GIS datasets are detected and automatically repaired

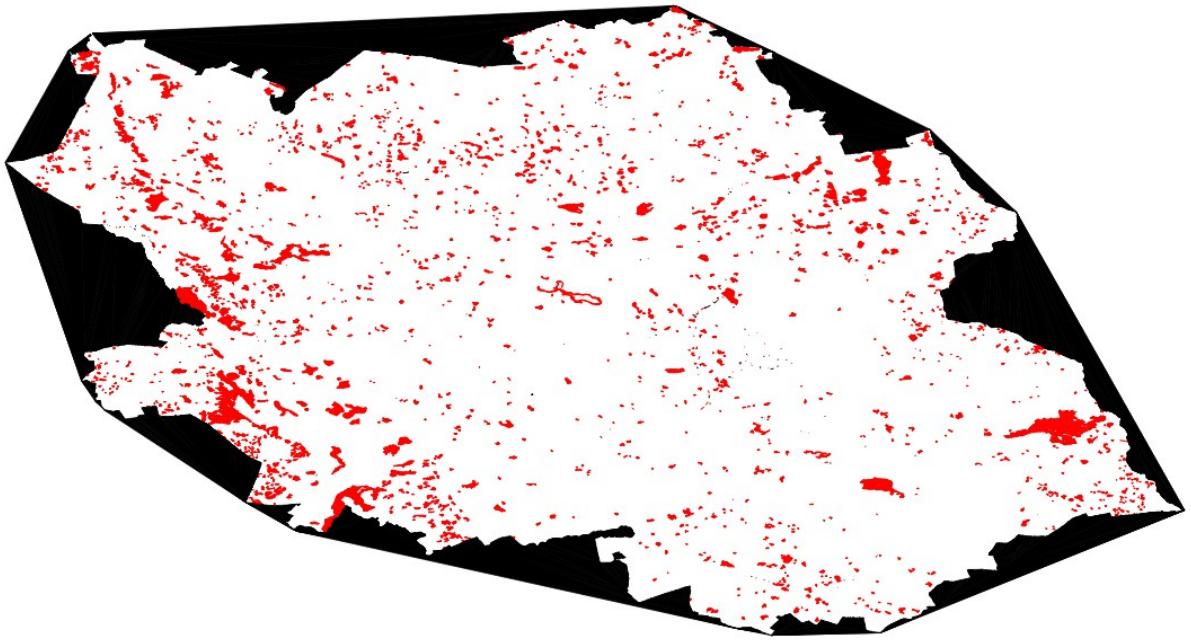


Tested with ELF dataset



Tested with ELF dataset

red = overlap between polygons



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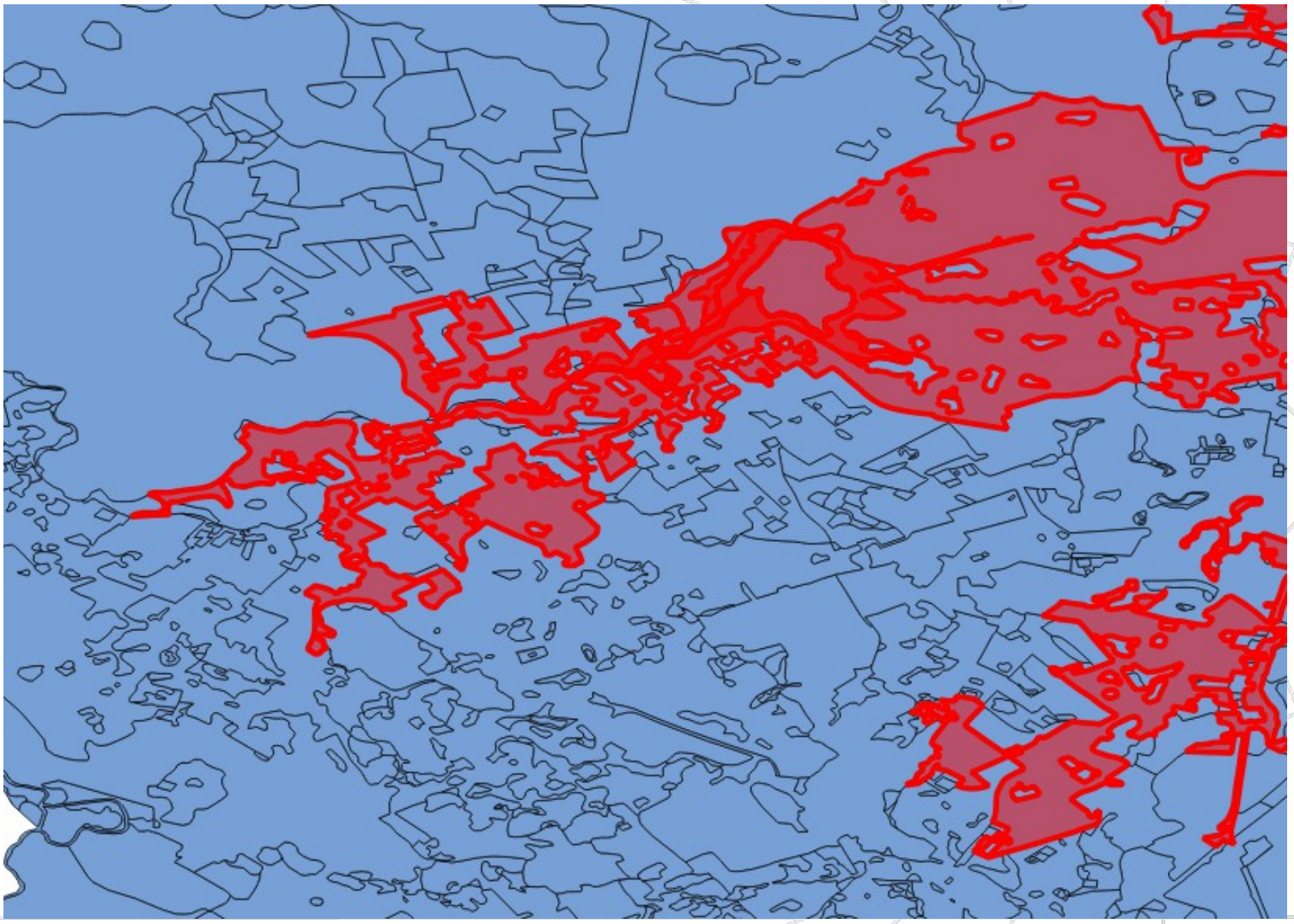


More information and download PPrepair?

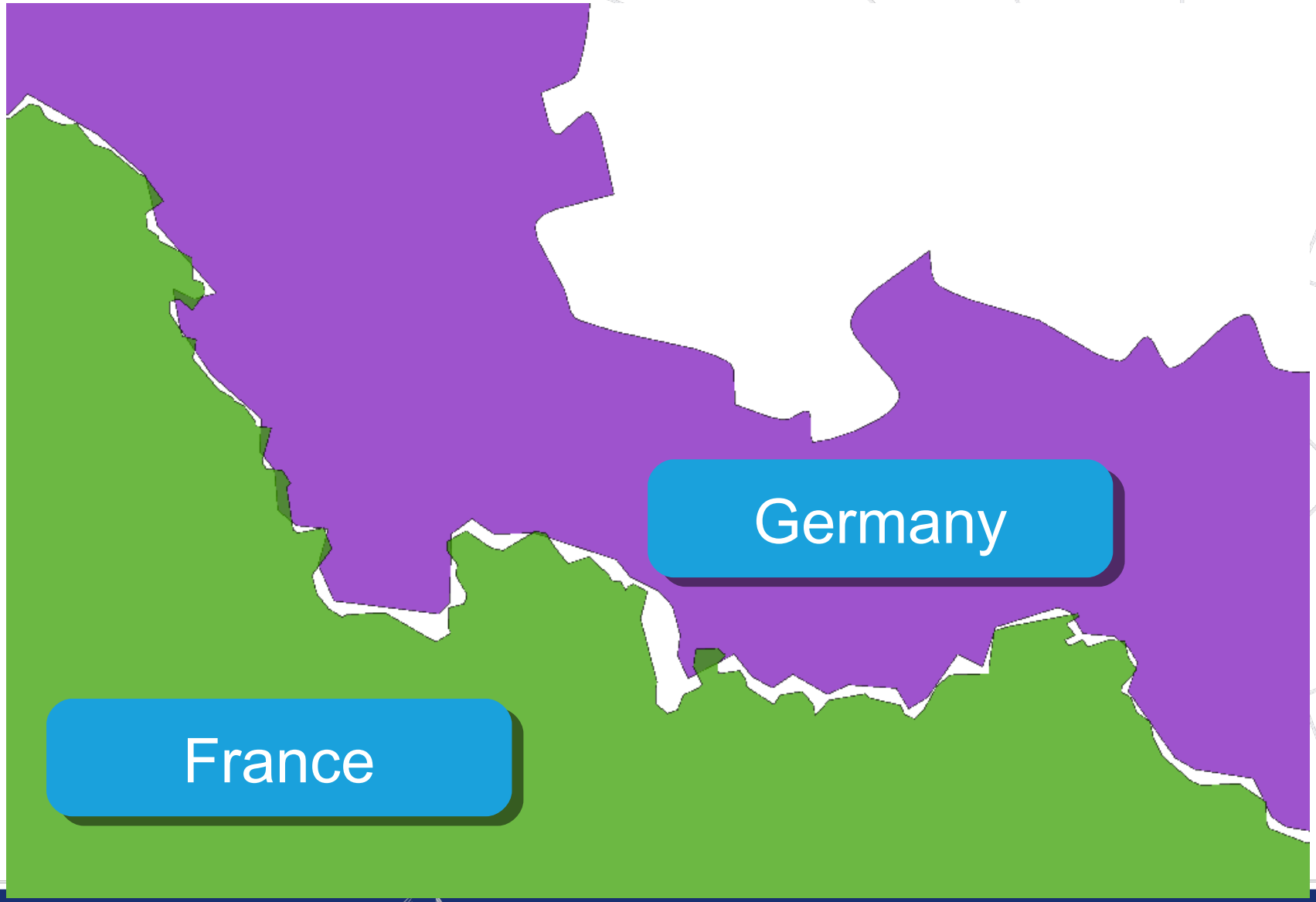
https://github.com/tudelft3d/pprepair

It is free and open-source software (GPLv3 licence)

Works with *shapefiles* and GML input

Windows app will be released soon (only Mac/Linux at this moment)

Edge-matching uses same principle



Edge-matching uses same principle

ELF & Linked data:

- ELF operational Phase 2016-2018 planning is in progress.
- Further development on ELF infrastructure plans are in progress including:
  - API's on WFS's
  - Linked data
  - 3D
- Already commitment by most of existing ELF partners to continue development of ELF.

Follow the ELF project www.elfproject.eu
Twitter @ELFProjectEU
See what is available www.locationframework.eu