ELF- joining Europe together

An open standard based multinational web mapping project, building on INSPIRE

Presentation to: ISO/TC211 Standards in Action Workshop

By: Jari Reini

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Why ELF?

Crowdsourcing

Authoritiesourcing = ELF

National Service
GI evolution - ELF revolution

• The INSPIRE directive has the potential to be a game changer; ELF is a significant step in turning potential into reality
• There is an increasing demand for accurate up-to-date location information for decision making at Global, European, Regional, National and Sub national levels - ELF provides a solution for all levels
• Existing Global players already provide a lot of data - users rely on these global sources, ELF wants to be one of those sources
• Authoritative data has not until now been easily accessible
• The way location data is utilized has changed - smart phones, web services
• SMEs can use ELF data to create new innovations
ELF project in a nutshell

- 30 partners, 13 National Mapping Authorities + 10 more joining
- 19 countries
- Part funded by the ICT-PSP budget, 13 million euro
- Runs between 2/2013-2/2016 (8/2016 proposed)
- 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
What benefits does ELF provide?

- Creates business opportunities in Europe (startups, application developers, SMEs)
- Linking national INSPIRE services through ELF e.g. for EC / EEA Copernicus, PSI etc.
- Provides INSPIRE services on behalf of the MS;
- Edgematiching, combined services, access to services, licences, open data...
- Regional co-operation with neighbouring MSs
- 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)
ELF Data in 2017

- Project partner countries (13)
- Joining to the project in 2015 (6)
- Data provider(3)
- EG Global Data available (Regional missing Ukraine, Bulgaria, Croatia, Makedonia and Kosovo)
ELF technical Architecture

ELF Geo-Tools for Reference Data: edge matching, generalisation, transformation, change detection, visualization, data quality analysis and improvement service testing

National Mapping & Cadastral Authorities

NSDIs

Other Data Providers

ELF Platform: Reference Data & Services

NMCA data

ELF Geo-Tools

Oskari

Geo Product Finder

Geo Locator

INSPIRE/ELF data

Applications: Use Reference Data and other data in any application environment

Map applications

Value-added Web Services

GIS Platforms: Data and Application Hubs of the ELF Infrastructure

Feature data, gridded data, map tiles

Web Services

JavaScript APIs

Mobile SDKs

Map Applications

Other Data Providers

NSDIs

National Mapping & Cadastral Authorities

ELF Geo-Tools for Reference Data: edge matching, generalisation, transformation, change detection, visualization, data quality analysis and improvement service testing

locationframework.eu

e1f.maps.arcgis.com

the Competitiveness and Innovation framework Programme (CIP)

ICT Policy Support Programme (PSP) Call 6 Grant 325140

EUROPEAN LOCATION FRAMEWORK
Standards in action

• CSW
• WFS-G (Gazetteer Application Profile)
• WMS, WMTS
• WFS
  ★ cascading services
• TJS
  ★ joining content from CSV etc.
• ArcGIS Online
  ★ REST API
• XACML
  ★ Authorisation
www.locationframework.eu

ELF preoperational launch at the INSPIRE conference
June 2014
Locationframework.eu

- Showcase Application demonstration what is available
- ArcGIS Online access point
- Documentation (access point to services)
- (Registration)
- GeoProductFinder

Welcome to the European Location Framework (ELF) service—a single point of access for harmonised reference data from National Mapping, Cadastre and Land Registry Authorities.

This website is being developed as part of the ELF Project to create the technical infrastructure for delivering authoritative, interoperable, cross-border geospatial reference data. Global and regional level reference data is currently available along with a showcase application demonstrating search and selection options. You can also access the ELF ArcGIS online platform. More functionality and content will be added in the coming months.

The service is jointly funded by the European Commission’s Competitiveness and Innovation Framework Programme and the Project Partners.

For more information about the ELF Project, please visit www.elfproject.eu.
Language Support (10) more coming
Currently 40 national services available -> 104 by end 2015

Available services

Possibility to add thematic Data (now for example EEA Services)

Also other national Data (now for example Finnish postal code areas)

Bring your own data (for registered users)
GeoLocator – searching geographical names, addresses and admin unit names
<table>
<thead>
<tr>
<th>Place</th>
<th>Region</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paris</td>
<td>Administrative capitals</td>
<td>Other populated places</td>
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<tr>
<td>Paris</td>
<td>Other populated places</td>
<td>Other populated places</td>
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<tr>
<td>Paris</td>
<td>Other populated places</td>
<td>Other non-residential structures</td>
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<td>Other non-residential structures</td>
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<td>Nimi</td>
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<tr>
<td>Bole</td>
<td>Helsinki (fin)</td>
<td>Maataloudenrahoitus</td>
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<td>Pasila</td>
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<tr>
<td>Pasila</td>
<td>Virolahti (fin)</td>
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</tbody>
</table>
Basemap – a WMTS service populated from national WMS services

Master level now piloted – Norway, Finland, Sweden and Netherlands
The components of the ELF infrastructure will be documented incrementally on the following subpages as more specifications, datasets, tools, services and applications become available.

<table>
<thead>
<tr>
<th>Terminology</th>
<th>Specifications</th>
<th>Datasets</th>
<th>Geo-tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELF Platform services</td>
<td>ArcGIS Online services</td>
<td>Applications</td>
<td>Application Developers</td>
</tr>
</tbody>
</table>

The ELF Platform (http://locationframework.eu/) is at the core of the technical architecture of ELF. It comprises the datasets provided by National Mapping and Cadastral Authorities (NMCAs) and – in the future – other data providers. Using ELF geo-tools, the datasets are prepared by the NMCAs to conform to the applicable ELF data and product specifications.

The ELF Platform provides INSPIRE view and download services as well as other service interfaces to users of the ELF. "Users" includes end-users, application developers using ELF services and data in their applications as well as developers that provide ELF data in other platforms.
<table>
<thead>
<tr>
<th>Title</th>
<th>Responsible party</th>
<th>Open data</th>
<th>Description</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative units (Norway) Master level</td>
<td>Lantmäteriet (NMCA Sweden)</td>
<td>Yes</td>
<td>National dataset. High resolution. Contains 3 levels of administrative units. Updated every 6 months.</td>
<td>ELF Administrative units (Norway) WFS</td>
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<tr>
<td>ELF Administrative units (Sweden)</td>
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<td>No</td>
<td>National dataset.</td>
<td>ELF Administrative units (Sweden) WFS</td>
</tr>
<tr>
<td>ELF Hydrography (Finland) Master level</td>
<td>Maanmittauslaitos (NMCA Finland)</td>
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<td>National dataset. Recommended scale range &lt;1:25.000.</td>
<td>ELF Hydrography (Finland) WFS</td>
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<tr>
<td>ELF Addresses (Czech Republic) Master level</td>
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<td>National high resolution dataset. Updated daily. Recommended scale range &lt;1:20.000.</td>
<td>ELF Addresses (Czech Republic) WFS</td>
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<tr>
<td>ELF Cadastral Parcels (Czech Republic) Master level</td>
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<td>ELF Geographical names (Finland), Master level</td>
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<td>Yes</td>
<td>Geographical names Finland. Recommended scale range &lt; 1:50.000</td>
<td>ELF Geographical names (Finland) WFS</td>
</tr>
<tr>
<td>Geographical Names (Sweden), ELF Master Level</td>
<td>Lantmäteriet (NMCA Sweden)</td>
<td>No</td>
<td>Geographical Names in Sweden. DataSource is Swedish Placename register. Recommended scale range is &lt; 1:50.000.</td>
<td>ELF Geographical names (Sweden) WFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The master level hydrography dataset for Norway serves the Inspire feature types: Standing water, Watercourse.</td>
<td></td>
</tr>
</tbody>
</table>
Health Statistics application - CASPER Client
Potential "interoperability issues"

- De-centralised approach
- Schema versions
- The application can be only as good as services behind it
- Performance
Additional features coming soon

- Administrative (WMS) and Topographic Basemap (WMTS)
- ELF Cadastral Map WMS supporting Feature Info, Service uses national CP, AU, BU, AD WMS
- More national download services
- National Tours and ELF Innovation Award 2016
- Thematic Data
- More features in Geo Product Finder (user feedback, licenses, quality)
- Publish own embedded maps (using Showcase app)
- TJS (using EuroBoundaryMap)
Follow the ELF project [www.elfproject.eu](http://www.elfproject.eu)
Twitter @ELFProjectEU
See what is available [www.locationframework.eu](http://www.locationframework.eu)