An Introduction to the European Location Framework (ELF)

1 Why do we need the European Location Framework?

Everything happens somewhere! So the concept of 'location' is seen as critical for all organisations to effectively map their own data to the real world. By accurately placing assets on a map or associating business information with its location, organisations are able to be better informed to set government policy, manage the environment, handle natural disaster situations or simply to take better business decisions.

While this may seem like a simple concept, getting access to data in an easy to use and consistent way across Europe has been far from simple. It can be difficult to find the data, to know what the data covers, how to license the data for various types of use and re-use and the commercial terms set by the data provider.

To assist in some aspects of this, the Infrastructure for Spatial Information in Europe (INSPIRE) Directive passed by the European Commission, sets out to help establish a European-wide Spatial Data Infrastructure (SDI). Its goal is to tie European geospatial information producers and users together into a single community to improve decision making and operations in support of a productive and sustainable Europe.

But INSPIRE alone will not create a consistent pan European Spatial Data Infrastructure; the implementations of INSPIRE all take place at a national level operated by each Member State. The responsibility remains with the data user to locate the data they need on one or many national level geo-portals or the INSPIRE geo-portal. Even then, the data would not be harmonised across all Member States and further issues arise when considerations of how the data matches up at a country border. There needs to be a pan European infrastructure to deliver a joined up solution for e-government services like Copernicus and SEIS. This is where the European Location Framework (ELF) is taking a major step towards delivering on the European Location Strategy and in providing Europe's contribution to the United Nations Global Map for Sustainable Development. As a key initiative across all national governments, it also satisfies the requirements of the Directive on the re-use of Public Sector Information.

2 What is the European Location Framework?

The European Location Framework is a technical infrastructure that will deliver various online services for locating, accessing and using reference data from across Europe - via a single point of access. The ELF platform is built on the concept of cascading services which harvests data from national INSPIRE services and makes it available as a single pan European service. As each participating National Mapping & Cadastral Authority (NMCA) will need to have met criteria for quality, edge matching and harmonisation, the ELF Project will deliver the geo-tools needed for the data provider to make its data 'ELF compliant'.

The main technical elements of the ELF are:

a) ELF Infrastructure - ELF Data, ELF Services and ELF applications

b) ELF Data - geospatial reference data in accordance with one or more ELF specifications and made available through ELF. Initially ELF covers following INSPIRE themes administrative units, hydrography (land), geographical names, transport network, elevation, buildings, cadastral parcels, addresses.

c) ELF Services - spatial data services operating on ELF data, these will be available through ELF platform (operated by NMCAs and other data providers) and ELF-affiliated platform (operated by third party)

d) ELF Platform – an open source platform based on OSKARI, developed by the National Land Survey of Finland, to offer view, download and web mapping services.

e) ELF-affiliated Platform – Third party cloud GIS Platform - in the project this is based on Esri's ArcGIS Online service

f) ELF specifications. The definitions of the specifications for the various types of spatial data that will be made available through the ELF Platform and Services. ELF data specification are INSPIRE complaint.

g) Geo-tools - The tools needed by a data provider to harmonise its data to meet the ELF Data Specifications

h) Geo Product Finder - An online tool to assist organizations on all levels in finding, evaluating and acquiring European geospatial data.

i) Geo Locator - A geo-referencing service using addresses, geographical names and administrative units available from ELF platform.

But ELF is not only technical. It is a business oriented operational framework establishing common licensing terms, while still respecting the need for individual NMCAs to set their own pricing levels.

3 Who is responsible for ELF?

The delivery of ELF is under the direction of an ELF Project team comprising of a consortium of 30 organizations across Europe. The ELF Project commenced in March 2013 and runs for a period of three years until February 2016. Half the organisations are NMCAs supplying access to their national data; the remainder are domain experts in delivering web services, spatial data tools, universities, and application developers. Project is seeking to enlarge the participation to cover EU member states and also other reference data providers not limited to NMCAs.

While the project is funded for a fixed three-year term, it assures the sustainability of the ELF infrastructure under support of the community of European key stakeholders beyond the end of the project term.

The ELF project is funded 50% by the consortium partners and 50% by the EC's ICT PSP programme.

4 Using the European Location Framework

As part of a three year roll out, the ELF platform and services are available in 2015. The main users and beneficiaries of the ELF Platform will be spatial data business users, data providers and application developers. Over time, the emergence of applications using the ELF platform will deliver a benefit to a vast range of end users for whom the ELF platform is entirely transparent.

Data providers will use the ELF geo-tools for semi-automatic edge-matching the national data between countries, quality validation, generalization, etc. The geo-tools serve not only for international needs, but also for use at a national level.

Access to the ELF Platform will build knowledge and experience of how to setup web-services, exploit cloud-based platforms and the creation of pan-European applications/cross-border applications utilizing reference geo-information

5 ELF for NMCAs and Other Data Providers

ELF will, in the longer term, replace EuroGeographics' pan-European datasets. This has the advantage that NMCAs will need less resource for making reference data interoperable. By making this national data available through the ELF Platform, ELF opens new and wider markets for NMCAs' data and so lead to increased usage of reference data.

ELF supports the integration of 3rd party thematic datasets and National Spatial Data Infrastructures (including and beyond the INSPIRE themes) for service implementations based on specific user needs. ELF will raise the profile of NMCAs by giving access to authoritative geo-information enabling third party data providers to link their data to the NMCAs reference data and creating a sustainable operational framework for business users.

ELF will prove the value of NMCAs' data and services by increasing the number and type of users via ELF and generate return on investments from wider exploitation of the national data in commercial applications. Having this common implementation through ELF saves resources, speeds up the INSPIRE implementation and ensures adoption of best practice across the NMCAs.

6 ELF for Application Developers

The European Location Framework will offer a real time web mapping service that application developers can then use as the definitive pan European source of reference maps for their own applications. That way an application developer can focus on their own application data and the end user needs rather than having to worry about the reference map onto which their data is placed. Reference maps will be available as ELF basemap and as separate theme based maps. Maps are edge-matched over country borders. In addition a Geo Locator Service will be available based on addresses, geographical names and administrative units enabling geo-referencing and location of places.

Initially the project will work with four application domain experts in the areas of:

- Emergency Mapping for Natural Disasters
- Health Statistics
- Insurance
- Property and Real Estate

Applications will be developed in each of these areas that directly use the ELF services as an integral part of the application that the developer offers to its own users. As the European location Framework will offer a single authoritative source of reference map data from across Europe, it will offer a 'one stop shop' for an application developer to include reference maps in its own applications. Over time more and more application developers will take advantage of the ELF Platform and so the range of applications using ELF will extend from the initial target applications.

7 ELF for Data Users

ELF implements the European Spatial Data Infrastructure (INSPIRE) at cross-border and European level, making reference data and other data interoperable and easy to access. It provides a resource for cross-boundary applications including EU reporting needs. By creating the operational environment for real time, value added applications, business users with domain expertise in using spatial data can get access to new national data via a European wide service providing up-to-date richer content to users. Users of the ELF will access the services operated by NMCAs and NSDIs while NMCAs will keep full control of how their data/services are licensed and used by third parties.

8 How do I find out more?

The ELF Project has its own website www.elfproject.eu. This is the easiest way to keep up to date on what the project is working on. Information is also put out via Twitter from the account @elfprojecteu and from a diverse range of Twitter users all using a common hashtag #elfprojecteu. Alternatively, please contact the National Mapping and Cadastral Authority for your own country.

A demonstration showcase www.locationframework.eu shows the ELF data available. This showcase application can be used for locating data, downloading and viewing. It will be available in 2014. The full ELF platform services will be available in 2015.