European Union Location Framework

“TOWARDS IMPLEMENTATION OF THE EUROPEAN UNION LOCATION FRAMEWORK”

A workshop of the EULF project convened by the European Commission, Directorate General Joint Research Centre
9 October 2014, 11.00 – 12.30

Francesco Pignatelli
European Commission (JRC)

www.jrc.ec.europa.eu

Serving society
Stimulating innovation
Supporting legislation
Objectives of the workshop

- To understand what’s happening on the EULF project
- To consider the applicability of the EULF in tackling issues you see as relevant
- To help make the EULF as practical as possible
- To identify where the EULF can make an impact in location enabling e-government
Agenda

- Welcome and introduction
- Keynote: Location enabling e-government
- EULF: Everything you should know in a nutshell
- Some best practice stories
- Panel Discussion / Audience Q&A: How the EULF can make a real impact
- Summary and Wrap Up
Participants

- Francesco Pignatelli (European Commission, JRC)
- Ray Boguslawski (European Commission, JRC Consultant)
- Noud Hooyman (Ministry of Infrastructure and Environment, Netherlands)
- Bruce McCormack (EUROGI)
- Clemens Portele (Interactive Instruments, Germany)
- Danny Vandenbroucke (KU Leuven, Belgium)
Everything you should know about the EULF in a nutshell

• The Interoperability Solutions for Public Administrations (ISA) Programme context

• What is the vision for the EULF?

• What has been learned in assessing the current state of play in Member States?

• How will the EULF Blueprint give practical help in creating location-enabled e-government services?
The ISA Programme
"The European Union Location Framework (EULF) is Action 2.13 of the Interoperability Solutions for Public Administrations (ISA) Programme".

Interoperability is a key enabler for the provision of efficient, low cost and secure Public Administrations' e-services at national and EU level.
What interoperability really means

the ability of disparate organisations, to interact towards agreed goals, by sharing information through their business processes, by means of exchanging data between their IT systems.

at all levels: legal, organisational, semantic, technical,
ISA in detail

Stages?
- Current programme 2010-2015 (*preparation for interoperability*)
- ISA² future programme 2016-2020 (*facilitate exchanges*)

Who?
- Commission: DG DIGIT.B6
- Stakeholders: Other DGs and Members States

How?
- Programme based, via actions
- Revised every year
- Actions implemented by Framework Contracts or Call for Tenders
What is the Vision for the EULF?
EULF challenge

“Coherent and committed action is required to exploit the potential of location information and to satisfy the real-world needs and expectations of users”.
What EULF wants to address

• Many government processes with G2G, G2B and G2C interactions
  ▪ Lack *integration* of location information and services
    – often administrative processes and GIS are two worlds apart
  ▪ Are not well *aligned* regarding location information
    – legislation, procedures (e.g. procurement)
  ▪ Do not *interoperate* in an optimal way
    – e.g. different definitions and interfaces

• At the same time
  • INSPIRE and Spatial Data Infrastructures (SDIs) are being developed
  • Need to embed SDI components in those work processes
EULF vision

"More effective e-services, savings in time and money, and increased growth and employment will result from adopting a coherent European framework of guidance and actions to foster interoperable cross-sector and cross-border sharing and use of location information"
Purpose of the EULF

- to help ‘location-enable’ e-government
- by providing a framework for assessment and action
- Relevant to all sectors and across borders
- Using INSPIRE in new situations
- Delivering interoperability alongside the other ISA actions
- Based on an EU-wide survey and assessment
- With guidance in a series of focus areas
- Tested and refined through a range of pilots and use cases
- Delivering benefits for government, citizens and businesses
EULF focus areas

**Policy and Strategy Alignment:**
Consistent EU and Member States policy and legislative approach

**Return on Investment:**
Strategic funding and procurement, compelling business cases and good evidence of benefits

**Effective Governance and Partnerships:**
Decision making, collaboration, awareness and skills to share and apply best practices

**e-Government Integration:**
Location is a key enabler in e-Government services, addressing user needs and expectations

**Standardisation and Interoperability:**
Standards and technologies for interoperability and re-use are consistently applied
EULF stakeholder landscape

Stakeholder Consultation

Private Business

INSPIRE EC/EEA Team

DG CONNECT DG MARE

ISA WG SIS

COGI

DIGIT

DG MOVE DG ENER

Citizens

Public Authorities

UN-GGIM Europe

Research and Academic
**EULF deliverables**

- **Strategic vision**: Shared vision and rationale for the EULF, defines its scope and highlights the governance and implementation approach.
- **Survey and Assessment**: Assessment of the state of play in the five focus areas of the EULF.
- **Blueprint**: Recommendations, guidelines, methodologies and best practices in the EULF focus areas.
- **References**: Inventories, links and supplementary information related to the EULF.
- **Roadmap**: A high level implementation plan for the EULF.
- **Pilots**: A series of pilot studies in various policy areas (transport, marine and energy), to both validate and contribute to the EULF.
Key links with ISA on ‘location’ interoperability

- Coordination, funding, procurement, benefit realisation
- Policy alignment
- Service integration
- Data optimisation
- Application development
- Best practice solutions and tools

EIF Interoperability levels

- Political context
  - Legal View
  - Organisational View
  - Semantic View
  - Technical View – Application
  - Technical View – Infrastructure

EULF Blueprint

TOOLKITS: Recommendations, best practices, guidelines, methodologies

EIRA European Interoperability Reference Architecture

EICart European Interoperability Cartography

24/10/2014
EULF benefits

✓ Better services
✓ Cost and time savings
✓ More effective policy development leading to improved policy outcomes
✓ Improved conditions for businesses
✓ More open and transparent government
✓ Support to innovative research
### EULF deliverables schedule

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  - v2

- **Survey and Assessment**
  - Survey
  - v1

- **References**
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  - v3
  - v4

- **Blueprint**
  - v0
  - v1
  - v2

- **Roadmap**
  - v1
  - v2

- **Consultation**
  - [ ]

- **Transportation Pilot**
  - Phase 1
  - Phase 2

- **Marine Pilot**
  - Phase 1
  - Phase 2

- **Energy Pilot**
  - Feasibility
  - Pilot

- **Other Use Cases**

24/10/2014
EULF Roadmap

Inception 2013-2014
- Assessment
- Vision
- Blueprint and Roadmap

Key documents of the EULF

Execution 2014-2016
- Pilots to validate concepts
- Use cases to demonstrate integration
- Refine Blueprint

Guidance documents
Showcases

Operation > 2017
- Multi-sector project
- Process oriented
- Solving priority problems
- Continued alignment with DAE interoperability and Digital Single Market goals
- Multiple Member States
Extending the opportunities
What has been learned from the Member State Assessment?
EULF Assessment

- Assessment of the **state-of-play** in the five focus areas of the EULF
- Based on **survey among EU member states**, analysis of best practices, document analysis and interviews
e-Government integration

- In **none** of the European Member States is location information **fully integrated** in e-Government policy.
- In most ‘key’ e-government processes, the **level of integration** of location information is low:
  - except in the management of addresses and the registration of real property.
- Some **good examples** of location information services to citizens and businesses.
Policy and strategy alignment

- **Awareness** of INSPIRE and recognition of the relevance of INSPIRE is still missing in many policy areas.
- The way reference is made to INSPIRE and/or to location information in *procurement* is very variable.
- Some Member States started with the **identification of policies** dealing with the production, use and exchange of location information.
- In some policy areas, **initiatives are taken** to define how alignment with INSPIRE can be achieved from a legal, organizational and technological perspective.
  - E.g. ROSATTE
Standardisation and Interoperability

- Knowledge about and active application of the **INSPIRE specifications** seems to be relatively lacking in many Member States
- **Architectural document** integrating and explaining the relevant location information and e-Government standards
- **Active involvement** in the standardisation process of the GI- and e-Government communities allows to apply the standards and specifications in a more systematic way
Return on Investment

- **Many studies** exist, but most of them address benefits of location information from a single perspective.

- Many stakeholders face **difficulties in measuring benefits** and costs in a consistent and systematic manner (including quantitative measurements).

- At this moment, the benefits of location information for **government** seem to be most pronounced.

- Benefits to **citizens and businesses** and broader socio-economic benefits are less obvious (or more difficult to measure).
Effective Governance and Partnerships

- The **EULF stakeholder** landscape is complex and includes a broad range of stakeholders and communities
- EULF needs to build on and take into account *many* related frameworks and initiatives
- Existing practices on integrating and using location information and services in public sector processes demonstrate the need to create and maintain effective partnerships
  - between government, businesses, citizens and other parties
How will the EULF Blueprint help in creating location-enabled e-Government Services?
The **EULF Blueprint** is a multi-part document consisting of:

- Recommendations
- Actions
- Guidelines
- Methodologies
- Best practices

It provides a “**Framework for Action**” for *working together* to implement interoperable cross-sector and cross-border sharing and use of location information.
EULF Guideline Development in Progress

Giving you **practical help** in creating location-enabled e-government services
EULF Recommendations: Policy and Strategy Alignment

1. Location information as an essential part of an e-Government strategy

2. An approach for aligning the use of location information and INSPIRE in different thematic policies

3. Guidance on how to refer to INSPIRE and geospatial standards in public procurement
Current procurement practices

• Method
  ▪ Repository of procurement cases
  ▪ Analysing Call for Tenders (EU, national) between 2008-2014
    – 21 cases selected
    – 15 cases fully described
  ▪ Parameters
    – General: name (short & full), ID, organisation, level, year, objective
    – Specific:
      • General reference to INSPIRE
      • Reference to specific GI standards/specs
      • Components covered in the procurement:
        » data harmonization, network services, metadata, standards, geoportal
Current procurement practices

• Results of the analysis
  ▪ From the 10 fully described CfT
    – 9 deal with data harmonization
    – 3 deal with network service implementation
    – 4 define activities related to metadata
  ▪ Several procurement documents only refer to the INSPIRE Directive in a very generic way
    – E.g. EUCORES - European Coal Resources project
      • Requirement to develop classification schema’s related to coal deposits
      • INSPIRE refers explicitly to the energy theme AIII.20, INSPIRE data specifications (regulation n° 1089/2010)
Current procurement practices

• Most cases refer to INSPIRE and GI-standards

“(…) make available real-time air quality data via WMS/WFS and SOS technology, (...) conform with the specifications of the European INSPIRE Directive”

(AMOSYS)

Incomplete reference to standards

"Completing the Metadata Catalogue and a Metadata Profile, as well as creating an electronic template for filling metadata, enabling the standardization of the existing and future cartographic documentation, complying with the Inspire directive and ISO 19115/TS19139“

(SDI Cape Verde)

What should be conform?
e-Procurement guidelines

The analysis of the cases confirms the **need for guidance** of those involved in the elaboration of procurement documents

- “which specification and guidelines should be applied”
- “what are the relevant standards to take into consideration”
- “what conformity checks need to be performed – against which specifications”

1. **General references** to the INSPIRE Directive, the Implementing Rules and Technical Guidelines that are applicable

2. Precise **references** to relevant **standards**, to the repository of standards of the CEN and ISO committees, and of the OGC

3. A correct reference to **conformity/compliancy** requirements
   - including which results / outputs of the procurement should be conformant / compliant with which specification or standard
EULF Recommendations: e-Government integration

4. Location data and information for better service delivery

5. A process-based approach for SDIs
EULF Recommendations: Standardisation and interoperability

6. Architectural document to explain the relationship between relevant location information and e-Government standards

7. Establishing the link between the EULF and the EIF and EIRA

8. An EU approach to linked data for location information

9. An EU wide approach on authentication, authorisation and accounting
Standards for SDI and e-Government (ToC)

- Governmental Business Processes
  - G2C, G2B, G2G interactions - front and back offices
  - The role of (geo-)brokers
  - Standards for mapping processes (e.g. BPMN, BPEL)

- E-Government architectures
  - e-Gov and the EIS, EIF and EI(R)A
  - The role of location information in e-Government
  - E-Government services that are location enabled
Standards for SDI and e-Government (ToC)

- Standards for SDI and e-Government
  - Metadata
    - Asset Description Metadata Schema (ADMS)
    - Data Catalogue Vocabulary (DCAT-AP)
    - Relationship with SDI standards
  - Data
    - Core Vocabularies: persons, businesses, location and public services
    - Link with GI data specifications and standards for SDI
  - Services
    - Business process services
    - Service orchestration, chaining, mediation, ...

- Based on examples of good documents (NL, DE)
EULF Recommendations: Return on investment

10. Monitoring the use and integration of location information in a consistent and systematic way

11. Communicating the benefits of the integration of location information

12. Stimulating the creation of new applications and services by the private sector
EULF Recommendations: Effective governance and partnerships

13. An effective approach for consulting and involving all relevant communities and stakeholders

14. Adopting a governance model for the EULF

15. Governance of location information processes
EULF Best Practice Factsheets

Air quality monitoring and reporting in the Belgian regions

Using the same data both for informing the public and for decision making through web based services

Country: Belgium
Policy domains: Environment

Previous owners: Belgian Environmental Agency Flemish Environment Agency, Federal Environment Agency, Division Air and Climate

Air quality monitoring is a major public health, and an issue that is of the highest priority in the European Union. The EULF project is an initiative aimed at improving monitoring and modelling air quality, especially for government, not only for public health, but also for local, regional and national data. Air quality monitoring is an essential and important element of air pollution control measures. In Belgium, the government has implemented a monitoring system, the Belgian National Air Quality Network (BELNAN), to monitor air quality in the country. The network is a partnership between the Belgium, French, and Dutch regions. The Belgian Environmental Agency is responsible for managing the network, which includes data from all regions.

One of the key tasks of EULF is to promote and support the development of a European air quality monitoring system. The EULF project is working on developing a Common Implementation Strategy (CIS) for air quality monitoring in Europe. The CIS includes a set of guidelines and recommendations for monitoring air quality in a way that is consistent and comparable across Europe. The CIS is intended to help countries in Europe improve their air quality monitoring systems and to ensure that the data is collected in a way that is transparent and accessible.

The benefits of implementing the EULF project are significant. Improved air quality monitoring systems will help to identify areas that need improvement and to monitor the effectiveness of air quality measures. This will help to reduce the negative impacts of air pollution on public health and the environment.

Benefits
- Better information for decision makers
- Improved air quality management
- Better assessment of air pollution
- Better allocation of resources

Benefits for the public
- Improved air quality
- Better health outcomes
- Reduced exposure to harmful pollutants

Benefits for stakeholders
- Improved decision making
- Better resource allocation
- Improved risk management

Benefits for industry
- Improved health outcomes
- Reduced exposure to harmful pollutants
- Improved decision making

European Commission
Joint Research Centre
LoG-IN for economic policy (1)

- **Countries**: Belgium, UK, Germany

- **Policy area**: economic policy

- **Description:**
  - Registration and analysis of companies in a specific region through ‘Local Business Guide’
  - Supported by ‘Generic Information Infrastructure’
  - ‘Local Business Guide’ used by municipalities for communicating with businesses (e.g. provide information on road works, on local services to businesses,)
  - Access to Local Business Guide for citizens and businesses
LoG-IN for economic policy (2)

Policy and strategy alignment

- Development of information infrastructure in line with central government strategy
- Infrastructure supports different regional strategies
- Need to take into account different legal and political setting

E-government integration

- Started with the identification of bottlenecks in existing information processes
- Development of smart applications with an added value for different target groups
- Linking administrative and location information
LoG-IN for economic policy (3)

Standardization and interoperability
- Common standards for service delivery and ICT solutions
- Strongly based on web services and open standards (e.g. WMS, WFS, WCS, XML, GML,...)
- Creation of an open environment for local authorities to exchange spatial data, to build web services and to promote the use of spatial data

Effective governance and partnerships
- Collaboration between 35 local authorities from 3 European countries
- Co-development between the public and the private sector
- Infrastructure re-used by governments outside the partnership
LoG-IN for economic policy (4)

- **Benefits for public administration**
  - Saving of over 1.5 million euro and 15 FTE staff to date
  - Improvement in effectiveness of up to 50%

- **Benefits to citizens and business**
  - Access to correct and up-to-date information on services
  - Companies can publish information on their activities

- **Broader benefits**
  - Change in perception of the role of local authorities in economy policy
  - Empowerment of public employees
Some best practice stories: EULF pilots
General approach to the EULF Pilots

1. Define pilot scenario(s)
2. Build demonstrator
3. Evaluate learning and benefits, feedback to EULF
4. Assess integration of thematic requirements and INSPIRE
5. EULF recommendations, guidance and best practice
EULF: provides the strategic framework with emphasis on policy and strategy alignment for e-Government enabled location applications.
EULF Transportation Pilot
Transportation Pilot: Policy context

- The ITS Directive was adopted in 2010.
- It aims to establish interoperable and seamless ITS services while leaving Member States the freedom to decide which systems to invest in.
- Action point 1.3 (Collection and Provision of Road Data) sets requirements to make road, traffic and transport services data used for digital maps accurate and available, where possible, to digital map producers and service providers.
Transportation Pilot: Policy context

- It sets the establishment of an Infrastructure for Spatial Information in the European Community
- One of the thematic annex of INSPIRE regards Transport Networks (TN)
- INSPIRE infrastructure thus has provided a possible organizational, legal and digital framework for the distribution TN/ITS data
Transportation Pilot: User Needs

• Intelligent Transportation Systems applications need highly up to date attributes that are critical in terms of safety, efficiency and positioning
• Private map providers cannot easily keep their maps up to date for such attributes
• The solution is to retrieve timely information on changes from the road authorities
• A common exchange format is needed, enabling an efficient data chain between public and private map providers
The challenge is...

Implement the Transportation Pilot and report back at the ITS World Congress (Bordeaux, 5-9 October 2015)

- Extension of Inspire framework
- Convergence of data and flows
- Pooling of resources
- Costs and benefits for all stakeholders
Transportation Pilot scope and purpose

- to test the provision of updates of safety-related road attributes by public road authorities in cross border scenarios (initially Norway and Sweden) using the TN-ITS common exchange format, which extends the INSPIRE Transport Network data specification

- for private sector ITS map providers to apply those updates and feedback information to public road authorities

- a key challenge is that a reliable form of georeferencing is needed to be able to work out which specific element within the map provider data needs to be updated

- validation of the EULF Blueprint and feedback on learning and benefits are key elements in the work programme
Transportation Pilot: partners

INSPIRE Compliance: Optional

INSPIRE Compliance: Legally mandated
Transportation Pilot from an ELF perspective

INSPIRE Compliance: Optional

Private Sector

Public Sector

INSPIRE Compliance: Legally mandated

Business

Map Providers

ITS

here

Citizens

Private Sector

Public Sector

Public Road Authorities

National Mapping and Cadastral Authorities

INSPIRE EC/EEA Team

Kartverket

ELF Infrastructure

TN-ITS Infrastructure

TNX-ITS

Statens vegvesen

Private Sector

Public Sector

Public Road Authorities

National Mapping and Cadastral Authorities

INSPIRE EC/EEA Team

Kartverket

ELF Infrastructure

TN-ITS Infrastructure

TNX-ITS

Statens vegvesen

24 October, 2014
Transportation Pilot from an ELF perspective

- Explore integration of reference data from other public authorities in the European Location Framework (ELF)
- Provide road network reference data both via the ELF platform (part of INSPIRE) as well as via affiliated platforms (in this case: ArcGIS Online)
- Explore referencing "business data" not covered by INSPIRE/ELF to European reference datasets
- Make additional European reference data available to ITS Map Providers beyond road network data
- Potentially explore provision of incremental updates of INSPIRE/ELF datasets
- This relates strongly to several of the EULF Focus Areas ...
EULF Focus Areas and the Transportation pilot

Policy and strategy alignment
- the pilot will be a test bed for EULF action of developing an approach for aligning thematic policies with INSPIRE, taking account of the ITS use case. The results of the pilot will feed back within thematic communities and INSPIRE community, possibly giving input to the INSPIRE Maintenance and Implementation Group.

E-Government integration
- Public Road Authority data will be published in a standardised way ready to be integrated WITHIN OTHER E-Government applications.
EULF Focus Areas and the Transportation pilot

Standardisation and interoperability:
- one of the successful outcomes of the pilot would be to bring the TN-ITS specification (INSPIRE compliant) to a CEN/TC 278 Technical Specification

Return on investment
- one of the activities of the pilot will be to assess and quantify the benefits deriving from its activities, as well as elicit the specific role of the EULF, in order to test and validate the approach described in the EULF benefit report

Effective governance and partnership:
- the pilot is a test bed for the EULF approach, in terms of gathering together stakeholders and make them collaborate on common objectives. In particular it will be an occasion in which private and public stakeholders work together on a practical case study
Energy Feasibility Study / Pilot
Energy policy

The European energy policy is best reflected by several Directives; the most important documents concerning the energy use in the building sector are listed hereafter:

- Directive 2007/2/EC INSPIRE infrastructure for spatial information
- Directive 2009/28/EC on the promotion of the use of energy from renewable sources
EPBD and INSPIRE

- Energy performance and promotion of CO2 reduction are use cases described in the INSPIRE Data Specification on Buildings:

  “some Member States or local governments are willing to have more pro-active policy and to encourage citizens to improve heating efficiency of their buildings (by better isolation). Better insulation not only reduces the emissions of greenhouse gasses but also contributes in long-term to money saving for inhabitants and to reduce the energy dependency of European countries.”

Source:
The importance of urban activity

- Local governments play a crucial role in mitigating the effects of climate change, considering that 80% of energy consumption and CO2 emissions is associated with urban activity.
Covenant of Mayors, Sustainable Energy Action Plan (SEAP) and Baseline Emission Inventory (BEI)

- Within the Covenant of Mayors framework, **BEI** is a detailed inventory of the **energy consumption** and **CO2 emissions** in the following areas:
  - Municipal buildings, equipment and facilities
  - Tertiary (non municipal buildings, equipment and facilities);
  - Residential buildings
  - Municipal public lighting
  - Urban road transportation (municipal fleet, public transport, private transport)

Covenant of Mayors signatories

- www.covenantofmayors.eu
- More than 5500 signatories
  Signatories represent cities that vary in size from small villages to major metropolitan areas such as London or Paris. Within a year following their signature, Covenant signatories commit to implement Sustainable Energy Action Plans on their territory, with the aim of cutting CO2 emissions by at least 20% by 2020.
- 51% are from Italy

source: http://www.covenantofmayors.eu/
The goals of the Energy feasibility study

- To assess the **degree of alignment** between the relevant Directives and with the Covenant of Mayors requirements
- To understand the **potential solutions** in supporting these requirements
Tasks of feasibility study

- The study started in July 2014 and will be concluded in March 2015, with the following main tasks:
  
  - Analysis of **existing projects and initiatives** related to “energy and location”, at EU/national/extra-EU levels
  
  - Analysis of **data requirements** related to energy performance of buildings, from INSPIRE and “energy” directives, as well as from the Covenant of Mayors SEAP
  
  - **Survey** on the **GeoICT sector** dealing with energy
  
  - Study of existing **open data platforms** to be considered for collecting and providing geo-information on energy
Panel Discussion / Audience Q&A
Panel discussion

- What is the most important thing the EULF can do in each focus area to achieve an impact?
- How can the EULF project ensure that citizens and businesses benefit from the Framework?
- What use cases should the EULF investigate to bring about the biggest improvements?
Audience Q&A Session

- Does the EULF vision make sense in the context of your experience? Should anything be changed?
- Does the proposed approach provide a practical way of translating policies into location-enabled services? How can the project ensure there is good adoption of the Framework?
- Do the Blueprint recommendations in each focus area make sense? How can they be improved?
Wrap-up and Conclusions
Contact and join us!

http://ec.europa.eu/isa/actions/02-interoperability-architecture/2-13action_en.htm

https://joinup.ec.europa.eu/community/eulf/description


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https://twitter.com/EULocation

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