Web apps for INSPIRE: the ELISE Energy pilot example

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Outline

- Overview of the ELISE Energy Pilot
- INSPIRE web app requirements
- INSPIRE web app architecture
- INSPIRE web app prototype
- INSPIRE web app as an INSPIRE Spatial Data Service
Overview of the ELISE Energy Pilot – ELISE in a nutshell

- ELISE (European Location Interoperability Solutions for e-Government) is the geospatial-related Action (coordinated by JRC) of the ISA² (Interoperability solutions for public administrations, businesses and citizens) Programme of DG Informatics of EC running from 2016 to 2020.
Overview of the ELISE Energy Pilot – ELISE in a nutshell

**ELISE: What Is It?**

- Studies
  - Assessing barriers and enablers to interoperability
    - Feasibility studies
    - Assessment studies
  - Implementing and enabling interoperability
    - Recommendations
    - Tools and Guidance
    - Common services

- Frameworks and Solutions
  - Re3gistry
  - INSPIRE in practice
  - Spatial Data on the web
    - EU Gazetteer
  - Location Interoperability guidance
  - Solution patterns inventory
  - INSPIRE Test framework

- Applications
  - Pilot projects
  - Partnerships and Collaborations
  - Energy Efficiency of Buildings
    - ITS Road Transport Data exchange
  - Geodata and Statistics

- Geospatial Interoperability
  - Geo Knowledge Base Service
    - Landscape Analysis
      - Capacity Building
      - Stakeholder Support
    - Helping implement interoperability
    - Training

- Location data economy
  - Role of location data in digital platforms
  - Geodata and Statistics
  - Open EU mapping
  - Location APIs

- Location interoperability Observatory
- Location-related ICT assessments of new policy
- Stakeholder engagement
  - Awareness raising publications / events

**2017 current activities**

- 2017 current activities
Overview of the ELISE Energy Pilot - aims

- Use location-based data to support stakeholders engaged in energy policies’ lifecycle
- Leverage location-based data at building level as enabling factor to scale-up the methodologies to assess energy consumption and performance from local to urban to district to regional to MS level as required by the European Directives in the field of energy efficiency
Overview of the ELISE Energy Pilot - specific objectives

- Show the benefits of an integrated approach for reporting, monitoring and planning, to handle multiple aspects of energy (energy performance of buildings, energy consumption and production at local level – renewable/non renewable, etc.) by:
  - Adoption of common structured data models (extending few INSPIRE core data models) and of common data access mechanisms (INSPIRE Network Services).
  - Re-use of (parts of) datasets for different reporting, monitoring or planning purposes.
  - Use of both centralized and distributed IT infrastructures which make accessible data needed to fulfil reporting, monitoring and planning requirements.
Overview of the ELISE Energy Pilot – the pilot use cases

- The pilot is tested by means of a set of use cases, involving different actors (public authorities at regional and local level, businesses working in the energy sector, citizens)
- The work presented here is related to use case 1 “INSPIRE harmonization of existing Energy Performance Certificate datasets”
ELISE Energy pilot – Use Case 1

STEP 1
Open cadastral vector dataset

STEP 2
Open cadastral vector dataset

STEP 3
To define a methodology to georeference the EPC dataset using cadastral data

STEP 4
Georeferenced EPC dataset

STEP 5
To create the target data model extending the INSPIRE core data model for Buildings

STEP 6
To transform the georeferenced EPC dataset into the INSPIRE extended target data model

STEP 7
To publish the transformed dataset by means of INSPIRE Network Services (WMS + WFS)

STEP 8
To use the harmonised dataset into a GIS client desktop application

STEP 9
To develop a web application to make harmonised data accessible by non GIS experts

STEP 10
To assess the possibility to apply the methodology (or enhance it) to other EPC datasets, managed by other organizations in other countries/regions
ELISE Energy pilot - INSPIRE Web App

Web app to facilitate access to and use of INSPIRE compliant harmonised data also by non-GIS experts

Requirements

- Specific type of data to be accessed;
- Elaborations eventually required on the data to be accessed (e.g. transformations);
- Common libraries (supporting the inbound data format)
- User interface
ELISE Energy pilot - INSPIRE Web App

Technical requirements

- Service: WFS 2.0
- Data format: INSPIRE GML 3.2 (produced using an INSPIRE extended schema)
- Web user interface HTML5
- Web map library supporting WFS 2.0
ELISE Energy pilot - INSPIRE Web App

WFS server

WFS 2.0 Response – GML 3.2

WFS 2.0 GetFeature

GeoJSON transformation

CRS transformation

Client compliant response

Client (OpenLayers / Leaflet)

INSPIRE GML 3.2 [produced using an INSPIRE extended schema]

GeoJSON with Polygons coordinates and required properties

From: EPSG 3044
To: EPSG 3857 or EPSG4326 with coordinates switch
ELISE Energy pilot - INSPIRE Web App

The prototype

- **Dataset**: Energy Performance Certificate Dataset from APRIE (public buildings)
- **Data format**: INSPIRE GML 3.2 (produced using an INSPIRE extended schema)
- **Web map library**: OpenLayers / Leaflet
ELISE Energy pilot - INSPIRE Web App

Prototype available for test!

http://europa.eu/!xM86nX
ELISE Energy pilot - INSPIRE SDS

Technical Guidance for INSPIRE Spatial Data Services and services allowing spatial data services to be invoked 4.0
ELISE Energy pilot - INSPIRE SDS

- **Conformance class:** interoperable
- **INSPIRE SDS metadata** available at:

Thank you!

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Want to know more?

ELISE
European Location
Interoperability Solutions for e-Government

Get started:  ELISE Action page
Join and collaborate:  ELISE Community
Stay tuned:  @EULocation

http://inspire.ec.europa.eu/

The ELISE action is undertaken with the support of ISA².
ISA² is a EUR 131 million programme of the European Commission which develops digital solutions that enable interoperable cross-border and cross-sector public services for the benefit of public administrations, businesses and citizens across the EU.
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