

# Building on INSPIRE

## Existing and missing components for cross-domain interoperability in the EU

Andrea Perego, Michael Lutz, Robin Smith, Paul Smits  
SEMIC 2013, 21 June 2013, Dublin



[www.jrc.ec.europa.eu](http://www.jrc.ec.europa.eu)

*Serving society  
Stimulating innovation  
Supporting legislation*



# The Joint Research Centre (JRC)

The mission of JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies.

As a service of the European Commission, the JRC functions as a reference centre of science and technology for the EU.

Close to the policy-making process, it serves the common interest of EU Member States, while being independent of special interests, whether private or national.

The *Digital Earth and Reference Data Unit* is part of the Institute for Environment and Sustainability, and it is the largest group in Europe devoted to research on Spatial Data Infrastructures and to the implementation in support of relevant EU policies (e.g., the INSPIRE Directive)

# What is INSPIRE?

Distributed infrastructure



27 countries  
23 languages

**General rules** for establishment

Environment



34 data themes  
Entry into force: 15 May 2007  
Implementation: 2009-2020

Set of European and national legal acts  
and their coordinated implementation



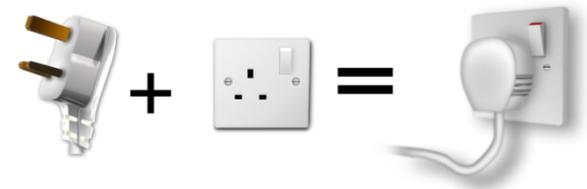
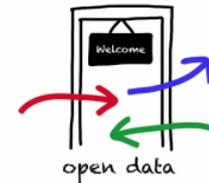
# INSPIRE in a nutshell

- Purpose: providing access to cross-border EU data to be used in support to
  - EU environmental policies
  - Policies or activities which impact on the environment
- Development & revision process involving experts & stakeholders from all EU Member States
- Comprehensive framework for data & service interoperability
- Cross-sector thematic scope
- Current status: *~200K data sets from EU Member States, discoverable through the INSPIRE Geoportal*



# The INSPIRE framework

- Comprehensive **data inventory** (Monitoring & Reporting)
- **Facilitate data discovery** through standardised discovery services & metadata (Network Services & Metadata)
- **Data sharing** (Data and Service Sharing)
- **Facilitate data access** by allowing standardised view, download and transformation (Network Services)
- **Facilitate data use and interoperability** by adopting common cross-domain models to exchange data (Data Interoperability)





## Re-using INSPIRE

- Methods and infrastructure components can be re-used for data & service interoperability in other sectors
- INSPIRE data can be combined with other data to enable cross-sector & cross-border “location-aware” analyses
- *The experience acquired so far through the implementation of INSPIRE may also help identify missing building blocks for cross-sector interoperability*



# Outstanding interoperability issues

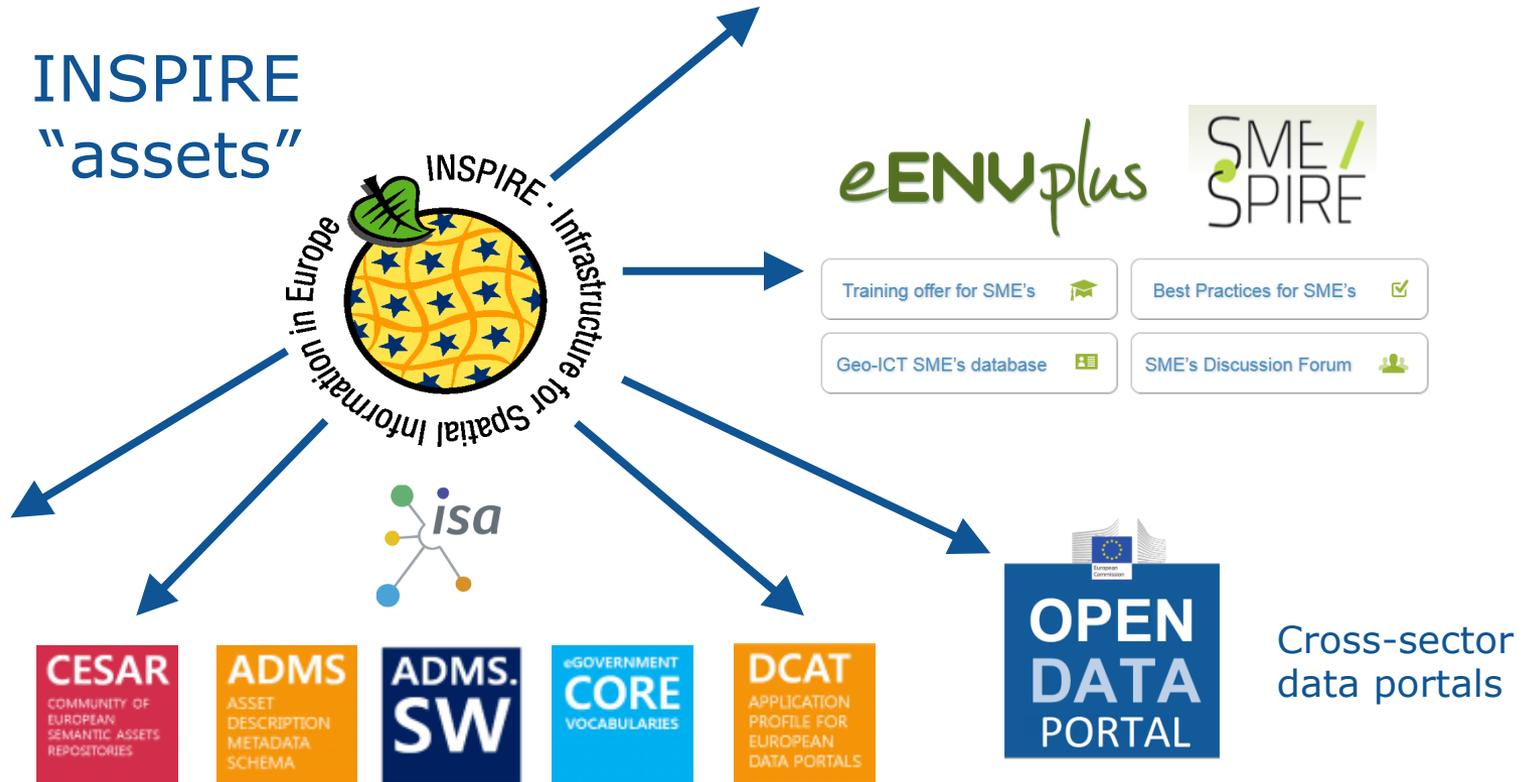
- A cross-sector framework for data & service licensing, rights management and access control
- Interoperable & interlinked (multilingual) controlled vocabularies and registers (also for location)
- Ability to assess data & service quality through provenance, conformity with quality standards and best practices
- Relevant initiatives
  - The Metadata Registry (MDR) of the EU Publications Office
  - The Open Data Certificate of the ODI (Open Data Institute)
  - Work at W3C on an Open Data Rights Language (ODRL)

# Re-use of expertise, experience, and networks

Formal and de-facto Standards Developing Organizations



INSPIRE "assets"



International initiatives



# INSPIRE in the EU ISA Programme

## EU Location Framework **EULF**

Enable cross-sector interoperability of location information in Europe, based on INSPIRE (through standards, case studies, guidelines, ...)

## Re-usable INSPIRE Reference Platform **Are3NA**

Identify gaps and help sharing re-usable components for cross-sector interoperability

# European Union Location Framework

Location data is used in a wide range of policy areas – e.g. environment, agriculture, transport, health, energy

INSPIRE data and standards can be used to support cross-sector and cross-border applications *where location matters*

Action is needed to engage decision makers and address the barriers to re-use and interoperability of location data & services

## EULF Actions (some examples)

Focus area	Action
Policy and strategy alignment	Understand current state of play in EU Member States and identify best practices in e-Government and location
e-Government integration	Share best practices and guidelines (e.g., procurement guidelines)
Standardisation and interoperability	Promote cooperation between between GI and ICT standards communities
	Promote use and extension of INSPIRE Technical Guidelines
Cost benefit focus	Conduct cross-sector and cross-border studies to assess benefits of consistent use of location data & services
	Share relevant best practices in business cases/benefit realisation

# Re-usable INSPIRE Reference Platform

# ARe<sup>3</sup>NA



Interoperability



Openness



Reuse



Collaboration

... sharing reusable components for INSPIRE implementation and interoperability in cross-border/cross-sector contexts.

# Re-usable INSPIRE Reference Platform

# ARe<sup>3</sup>NA



Interoperability



open source™

Openness



Reuse



Collaboration

... sharing reusable components for INSPIRE implementation and interoperability in cross-border/cross-sector contexts.

## ARe3NA actions (some examples)

- Provide more effective access to INSPIRE “assets” - data models, code lists, technical guidelines, software components
- Methodologies for the implementation of INSPIRE following Linked Data principles – including the definition of RDF vocabularies for INSPIRE
- A first contribution: the **INSPIRE Registry**
  - Giving access to **INSPIRE reference data** – e.g., themes, application schemas, code lists (~400)
  - Operated according to **Linked Data** principles
  - Prototype to be presented **next week** at the **INSPIRE 2013 Conference** in Florence



# INSPIRE REGISTRY

Enhancing access to European spatial data

European Commission > INSPIRE > INSPIRE registry > INSPIRE code list register > Service Type

## Service Type

<b>ID:</b>	<a href="http://inspire.ec.europa.eu/codelist/ServiceTypeValue">http://inspire.ec.europa.eu/codelist/ServiceTypeValue</a>
<b>Item class:</b>	Code list
<b>Language:</b>	en
<b>Label:</b>	Service Type
<b>Status:</b>	valid - <a href="http://www.isotc211.org/19135/valid">http://www.isotc211.org/19135/valid</a>
<b>Application schema:</b>	<a href="http://inspire.ec.europa.eu/applicationschema/us-govserv">http://inspire.ec.europa.eu/applicationschema/us-govserv</a>
<b>Register:</b>	<a href="http://inspire.ec.europa.eu/codelist">http://inspire.ec.europa.eu/codelist</a>
<b>Definition:</b>	Code list containing a classification of governmental services.

## Code values

ID	Label	Status
<a href="http://inspire.ec.europa.eu/codelist/ServiceTypeValue/publicAdministrationOffice">http://inspire.ec.europa.eu/codelist/ServiceTypeValue/publicAdministrationOffice</a>	public administration office	valid <a href="http://www.isotc211.org/19135/valid">http://www.isotc211.org/19135/valid</a>
<a href="http://inspire.ec.europa.eu/codelist/ServiceTypeValue/generalAdministrationOffice">http://inspire.ec.europa.eu/codelist/ServiceTypeValue/generalAdministrationOffice</a>	general administration office	valid <a href="http://www.isotc211.org/19135/valid">http://www.isotc211.org/19135/valid</a>
<a href="http://inspire.ec.europa.eu/codelist/ServiceTypeValue/specializedAdministrationOffice">http://inspire.ec.europa.eu/codelist/ServiceTypeValue/specializedAdministrationOffice</a>	specialized administration office	valid <a href="http://www.isotc211.org">http://www.isotc211.org</a>

## Conclusions

- INSPIRE provides a variety of “assets” useful to enforce cross-domain interoperability at the EU level
- EU Member States are already implementing INSPIRE – why not re-using it?
- However, a number of cross-domain interoperability issues are still to be addressed
- A coordinated effort at the EU and international level is desirable to devise effective solutions

# Thank you ... Questions?

## More information

INSPIRE

<http://inspire.jrc.ec.europa.eu/>

European Union Location Framework - EULF

- [http://ec.europa.eu/isa/actions/02-interoperability-architecture/2-13action\\_en.htm](http://ec.europa.eu/isa/actions/02-interoperability-architecture/2-13action_en.htm)

Re-usable INSPIRE Reference Platform – ARe3NA

<http://joinup.ec.europa.eu/community/are3na/description>

***Join us at the INSPIRE Conference in Florence  
23-27 June 2013***

[http://inspire.jrc.ec.europa.eu/events/conferences/inspire\\_2013/](http://inspire.jrc.ec.europa.eu/events/conferences/inspire_2013/)