

INSPIRE and Geo Data in the EU

Andrea Perego

Geospatial IG @ RDA P4, Amsterdam, 22 September 2014



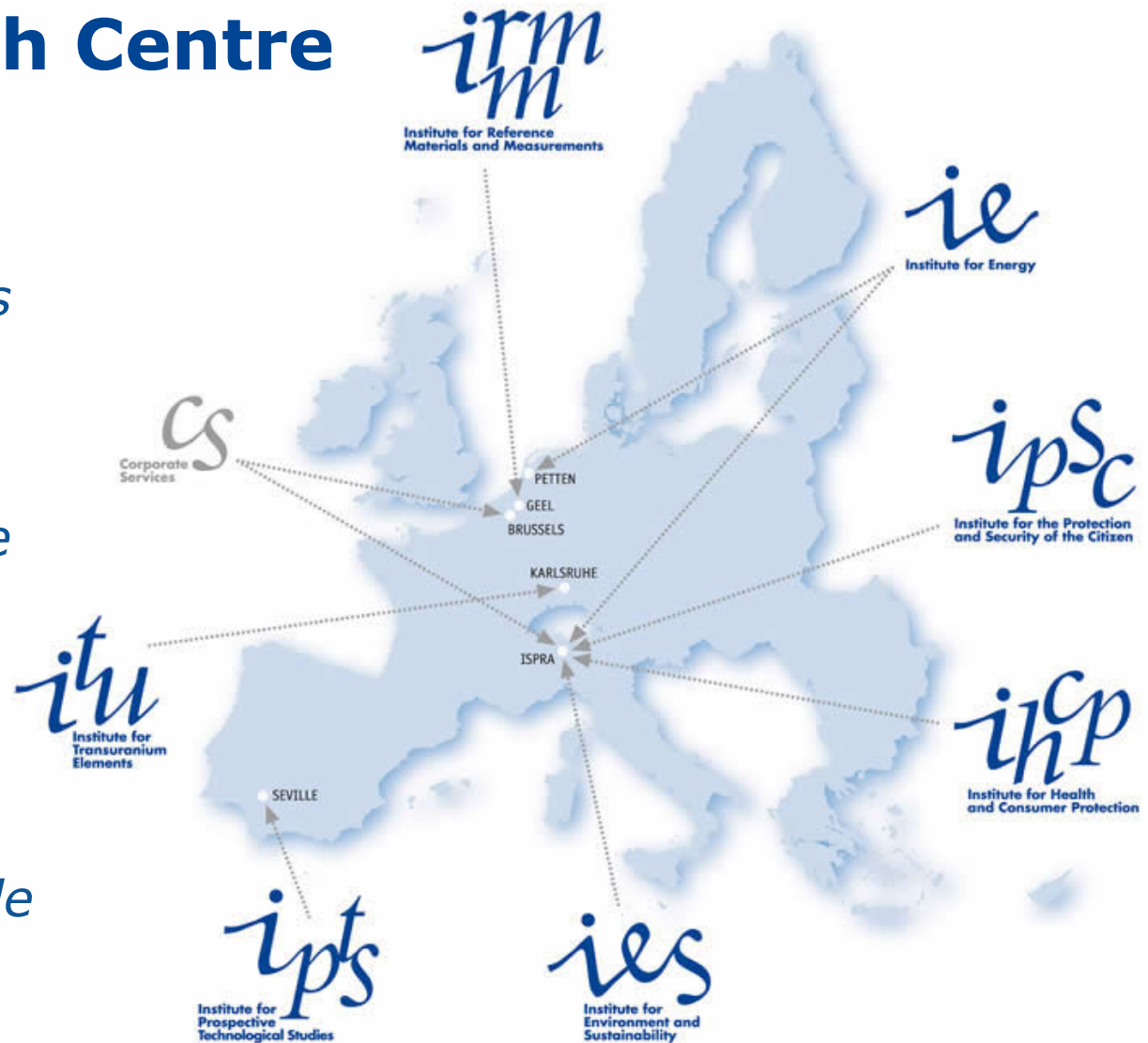
www.jrc.ec.europa.eu

*Serving society
Stimulating innovation
Supporting legislation*

Joint Research Centre

From the JRC's mission statement:

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.



Digital Earth & Reference Data (JRC.H.6)

- A Unit of the *Institute for Environment and Sustainability*
- Some of its institutional activities:
 - Technical coordinator for the implementation of the INSPIRE Directive
 - Coordinating the definition and implementation of a JRC-wide data policy

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 (public & private sectors, research institutions)
- Comprehensive *legal & technical* framework for data & service interoperability
- Cross-sector thematic scope
- Current status: *~200K data sets from EU Member States, discoverable through the INSPIRE Geoportal*



INSPIRE 2014: some remarks

- Hide complexity and make INSPIRE more fit to end-users
- Better integration of geo standards with main-stream standards
- Promote re-use of INSPIRE in other thematic communities
- Data quality and data sharing have to be effectively addressed
- INSPIRE, citizen science and crowd-sourced data
- INSPIRE and Big Data



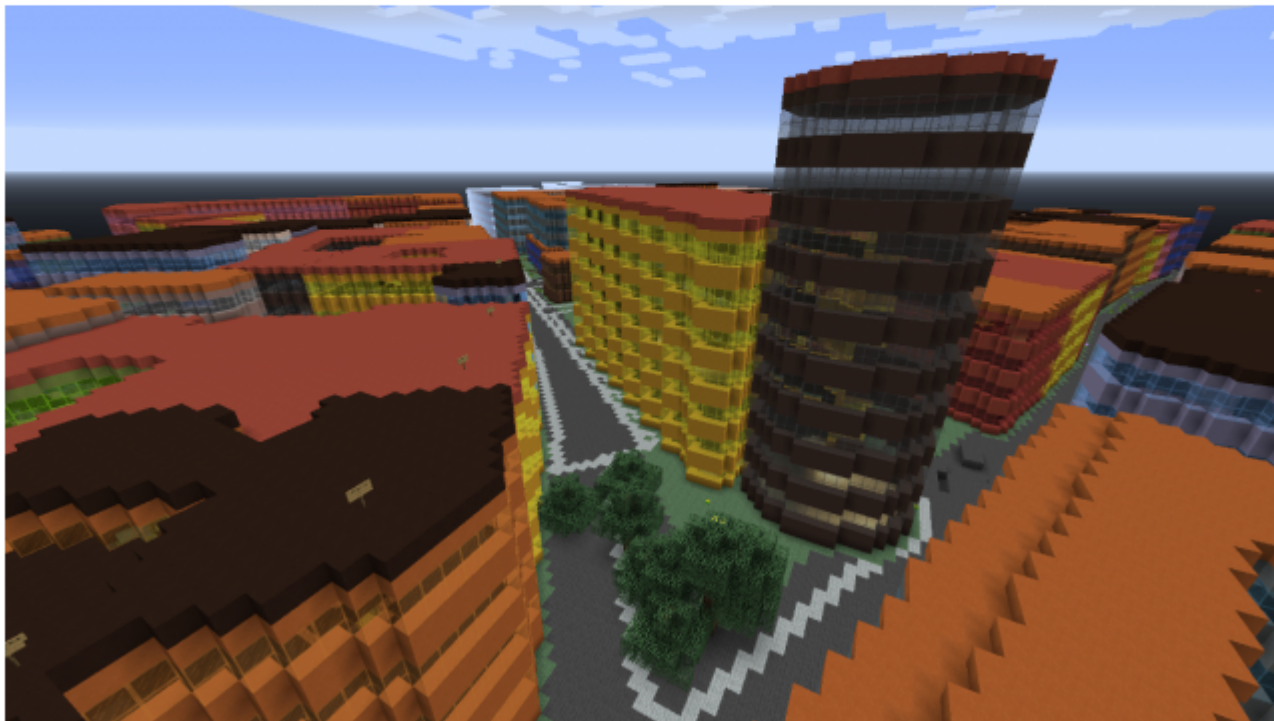
Credits: Martin Seiler

Danish government releases geographic data by way of 1:1 *Minecraft* map

Release of the nation's full topographical map to be mineable until Oct. 23.

by Sam Machkovech - Apr 25 2014, 6:30pm WEDT

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Linked Data @ INSPIRE 2014

metadata data & data models
linking with other data

bringing INSPIRE on the Web

open INSPIRE to a broader audience

using INSPIRE for cross-sector
interoperability



Phil Archer

@philarcher1

 Follow

After half a semester teaching my students about metadata my students search for geo data... using Google says Adam Iwaniak
[#INSPIRE_EU2014](#)

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2:24 AM - 19 Jun 2014

INSPIRE, Open Data & the PSI Directive

- A number of activities and regulations at the EU level:
 - Communication on Open Data (COM(2011)882)
 - Revision to the Decision governing re-use of Commission's documents (2011/883/EU)
 - Revision to Directive on the re-use of Public Sector Information (2013/37/EU)
 - EU Programme on Interoperability Solutions for European Public Administrations (ISA)
- Open Data portals
 - EU Open Data Portal
 - Pan-EU Open Data Portal



The G8 Open Data Charter in the EU

- Published 31 October 2013
- INSPIRE mentioned as

a comprehensive framework for access to and reuse of geospatial information including electronic infrastructures

EU implementation of the G8 Open Data Charter

Introduction

In June 2013, the EU endorsed the G8 Open Data Charter and, with other G8 members, committed to implementing a number of open data activities in the G8 members' Collective Action Plan.

Commitment 1 of the Collective Action Plan required each member to publish by October 2013 details of how they would implement the Open Data Charter according to their individual national frameworks.

Thanks to the many initiatives already adopted at EU level, including the revised Directive on the re-use of public sector information, the EU Open Data Portal and the new Commission rules on the re-use of its own documents, compliance with the G8 Open Data Charter and para. 47 of the June 2013 G8 communique is fully consistent with existing EU policy.

The following details the EU's on-going implementation of the G8 Open Data Charter.

Open data context

The European Union has for years been stressing the goal of opening up data as a resource for innovative products and services and as a means of addressing societal challenges and fostering government transparency. Indeed, better use of data, including government data, can help to power the economy, serving as a basis for a wide range of information products and services and improving the efficiency of the public sector and of different segments of industry. The European Union aims to be at the forefront of public administrations in terms of openness in relation to its own documents. Access to documents held by the three major institutions (Parliament, Council and Commission) is governed by Regulation (EC) no 1049/2001. This Regulation is currently under revision to bring all the EU institutions, bodies, offices and agencies within its scope, in accordance with the provisions of the Treaty of Lisbon.

In December 2011, the European Commission presented a comprehensive open data package, looking at the potential for further opening up data, in particular data produced by the public sector. The key element of this package is to reinforce the main legal instrument applicable across the 28 EU Member States, Directive 2003/98/EC on reuse of public sector information ('the PSI Directive'). The revised Directive entered into force in June this year.

As a rule, the European Commission has allowed reuse of its documents for commercial and non-commercial purposes at no charge since 2006. In 2011, it also engaged itself to work towards

Geospatial data in the EU data landscape

Guidelines on recommended standard licences, datasets and charging for the reuse of documents

- Published 24 July 2014
- Datasets “*in highest demand from re-users across the EU*”:

1. Geospatial data
2. Earth observation and environment
3. Transport data
4. Statistics
5. Companies

24.7.2014

EN

Official Journal of the European Union

C 240/1

II
(Information)

INFORMATION FROM EUROPEAN UNION INSTITUTIONS, BODIES,
OFFICES AND AGENCIES

EUROPEAN COMMISSION

COMMISSION NOTICE

Guidelines on recommended standard licences, datasets and charging for the reuse of documents
(2014/C 240/01)

1. PURPOSE OF THE NOTICE

Opening up public sector information (PSI) for re-use brings major socioeconomic benefits. Data generated by the public sector can be used as raw material for innovative value-added services and products which boost the economy by creating new jobs and encouraging investment in data-driven sectors. They also play a role in increasing governmental accountability and transparency. These benefits have recently been recognised by the GH leaders and codified in an Open Data Charter (1).

Yet, studies conducted on behalf of the European Commission show that industry and citizens still face difficulties in finding and reusing it. In response, in December 2013, the Commission adopted a package of measures (2) to overcome barriers to re-use and reduce the fragmentation of data markets. The key element was the recently adopted Directive 2013/37/EU amending Directive 2003/98/EC on the re-use of public sector information.

The amended Directive calls on the Commission to help the Member States implement the new rules by issuing guidelines on recommended standard licences, datasets and charging for the re-use of documents. The guidelines are an important element of the Commission's efforts to help the EU's economy to generate more value from data (including scientific data and big data) from other sources than the public sector. They will also facilitate the roll-out of open data infrastructure under the Connecting Europe Facility (CEF).

In August 2013, the Commission launched an online consultation followed by a public hearing and a meeting of a Member States expert group on PSI. The aim was to gather the views of all interested parties on the scope and content of the future Commission guidelines.

The feedback received (3) shows an increasing trend towards a more open and interoperable licensing system in Europe and agreement on the need for the speedy release of several high-value datasets. With regard to charging, it is clear that a wide range of approaches are in operation, but the newly introduced pricing principles were not called into question by the majority of respondents. This suggests that the PSI re-use market in Europe is still under development and that guidance on the key elements of the recently revised Directive is urgently needed if full advantage is to be taken of the commercial and non-commercial opportunities offered by the re-use of public data.

(1) <http://www.gov.uk/government/publications/open-data-charter>

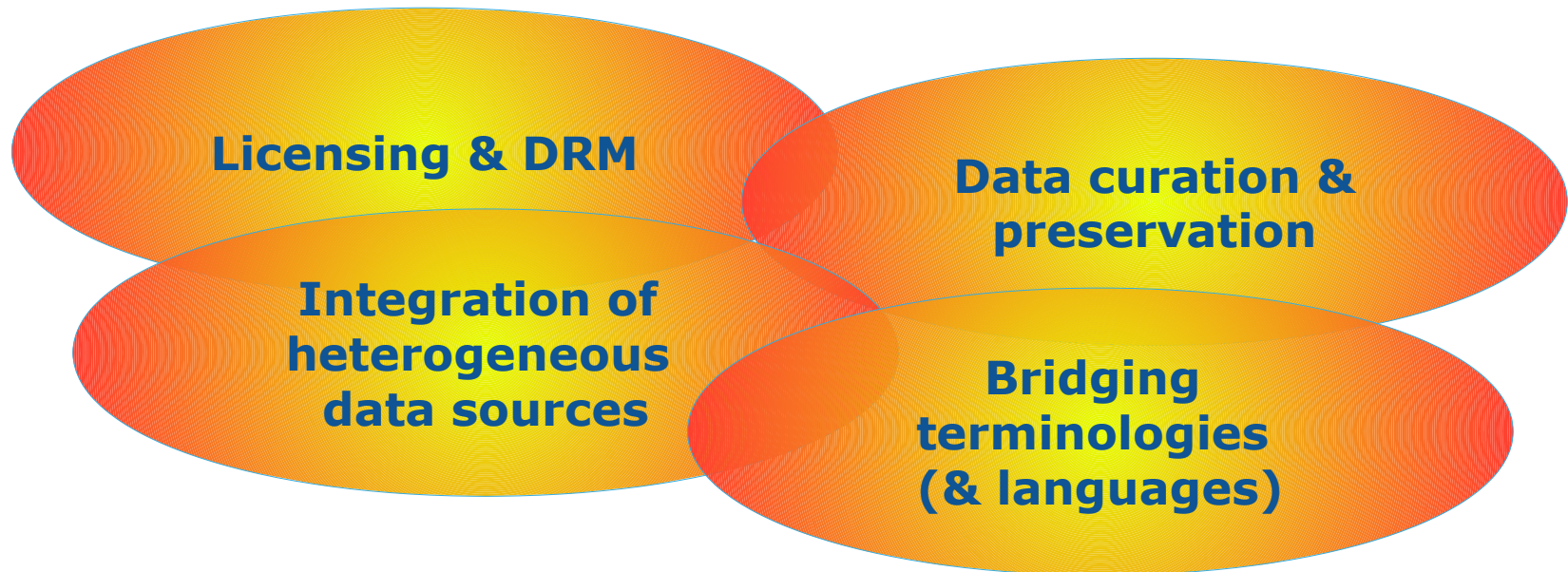
(2) http://ec.europa.eu/pressroom-release_detail.cfm?id=11491_en.htm&locale=en

(3) Final report summarising the outcome of the consultation: <http://ec.europa.eu/digital-agenda/en/news/results-online-survey-recommended-standard-licensing-datasets-and-charging-re-use-public-sector>

Joining efforts

- The public sector and the research community are facing overlapping issues about “data”
- In some cases, the solution is already available in other sectors and/or domains
 - Re-use (and adapt) may be a reasonable way forward*
- In other cases, no solution exists
 - Coordinating efforts might be mutually beneficial*
- But why shouldn't we do this separately?
 - In some cases, we may be not able to
 - We should be interoperable – e.g.: PSI is used in research data, and vice versa; support to *data integration*

Some common issues & challenges



A number of key requirements are about:

- Interoperability
- Usability
- Sustainability

Re-use of expertise, experience & networks



Interoperability Solutions for EU Public Administrations (ISA)



ISA is a Commission-driven EU programme, running from 2010 to 2015, which supports interoperability solutions, sharing and reuse among European Public administrations. It provides an architectural framework for the seamless exchange of information between IT-systems of the Member States

Development of guidelines, methodologies and components for cross-sector and cross-border ICT solutions.

INSPIRE & ISA



**INSPIRE
Directive**

**Environmental
Sector**



EULF: provides the strategic framework with emphasis on policy and strategy alignment for e-Government enabled location applications



A Reusable INSPIRE Reference Platform

ARe3NA: develops common components for the successful implementation of a EU spatial data infrastructure in line with the requirements of INSPIRE.

**Transport
Sector**



**ITS
Directive**

**Marine
Sector?**



**MSFD
Directive**

EFIR

**CORE
LOCATION
VOCABULARY**

**ADMS
ASSET
DESCRIPTION
METADATA
SCHEMA**

**DCAT
APPLICATION
PROFILE FOR
EUROPEAN
DATA PORTALS**

(Some) Work under-way

- INSPIRE registers & registries
- RDF and Persistent Identifiers for INSPIRE and location information
- Alignment of INSPIRE metadata with DCAT-AP
- Alignment of the INSPIRE themes and feature concepts with EuroVoc
- AAA (Authentication, Authorisation and Accounting), licensing schemes and data sharing



The screenshot shows a web browser window displaying the INSPIRE registry page. The browser's address bar shows the URL `inspire.ec.europa.eu/registry/`. The page header includes the European Commission logo and the text "INSPIRE REGISTRY Enhancing access to European spatial data". A navigation menu contains "About | Contact | Legal notice" and a language selector set to "English (en)". The main content area features a breadcrumb trail: "European Commission > INSPIRE > INSPIRE registry". Below this, the "INSPIRE registry" title is followed by a list of metadata:

- ID: <http://inspire.ec.europa.eu/registry>
- Language: en
- Label: INSPIRE registry
- Registry manager: European Commission, Joint Research Centre
- Content Summary: The INSPIRE infrastructure involves a number of items, which require clear descriptions and the possibility to be referenced through unique identifiers. Examples for such items include INSPIRE themes, code lists, application schemas or discovery services. Registers provide a means to assign identifiers to items and their labels, definitions and descriptions (in different languages). The INSPIRE registry provides a central access point to a number of centrally managed INSPIRE registers. The content of these registers are based on the INSPIRE Directive, Implementing Rules and Technical Guidelines.

Under "Other formats:", there are three icons and labels: XML, JSON, and Atom.

The "Registers" section is partially visible at the bottom of the page. On the right side of the browser window, there are three social media icons: a question mark, a speech bubble, and a RSS feed icon.

The INSPIRE Registry

- Giving access to INSPIRE reference data and resources
 - e.g., themes, application schemas, feature concepts, code lists (~400)
- Part of an effort aiming at the creation of a distributed infrastructure of federated registries, operated according to harmonised principles
- Characteristics:
 - Operated according to Linked Data principles
 - Agile design and implementation process, based on users' feedback
 - Public service that can be used also outside the INSPIRE framework

RDF vocabularies for INSPIRE

- Agree on a common RDF representation of INSPIRE data
- **Focus on methodologies**, possibly **re-usable**, for creating RDF vocabularies from the INSPIRE UML schemas
- Help **cross-sector re-use** not only of **INSPIRE data**, but also of the corresponding **data specifications**
 - *A number of INSPIRE theme have cross-sector relevance – e.g., addresses, transport networks, buildings, administrative units*



PIDs for INSPIRE and location data

- From the INSPIRE Directive:

The implementing rules shall address [...] a common framework for the unique identification of spatial objects, to which identifiers under national systems can be mapped in order to ensure interoperability between them

- The study is about **governance** of persistent identifiers (PIDs) in INSPIRE and relevant activities
- Needed for **linking data**, but also for other purposes – e.g., **versioning** support, improvements to data **harvesting** in distributed and federated systems

INSPIRE metadata and DCAT-AP

- **DCAT-AP** (DCAT application profile for data portals in Europe) is meant to provide a **metadata interchange format for data portals operated by EU Member States**
- To be used as a **metadata schema for the pan-EU Open Data Portal**, which is meant to provide a single access point for the cross-border discovery of datasets available from EU data portals
- Referred to as a **common metadata schema for European data portals** in the **EU implementation of the G8 Open Data Charter** (Oct, 2013)



Why mapping INSPIRE to DCAT-AP?

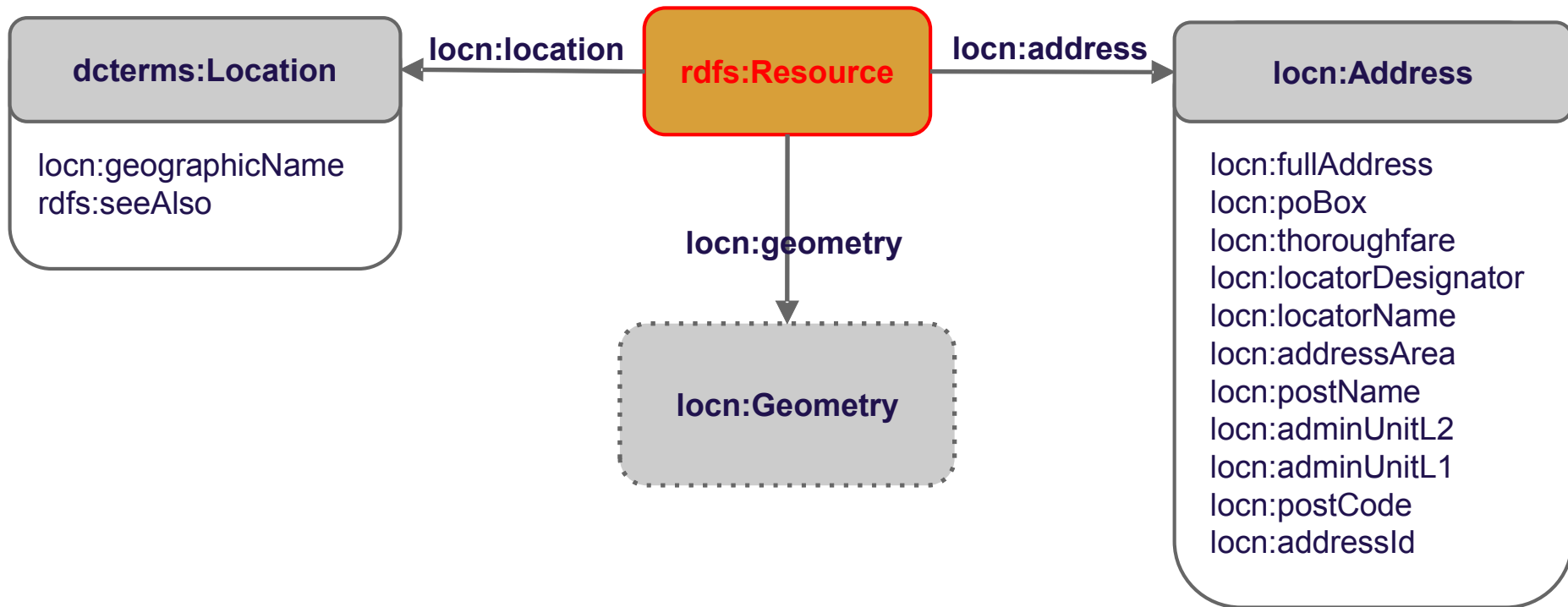
- Facilitate **cross-sector sharing of INSPIRE metadata**
- Agree upon a **common RDF representation**
- Identifying gaps in existing vocabularies, and promote standardisation activities on them
- E.g., no suitable candidates are available in widely used vocabularies for
 - spatial/temporal resolution
 - coordinate reference systems (spatial and temporal)
 - spatial representation type
 - topological consistency

ISA Core Location Vocabulary (LOCN)

- Defined in the framework of the EU ISA Programme, along with Core Person and Core Business
- Purpose:
Defining the minimal set of classes and properties used across sectors for specifying location information
- Partially based on INSPIRE
- Installed in W3C space in Nov 2013, under the responsibility of the Locations and Addresses Community Group (LOCADD)



ISA Core Location Vocabulary (LOCN)

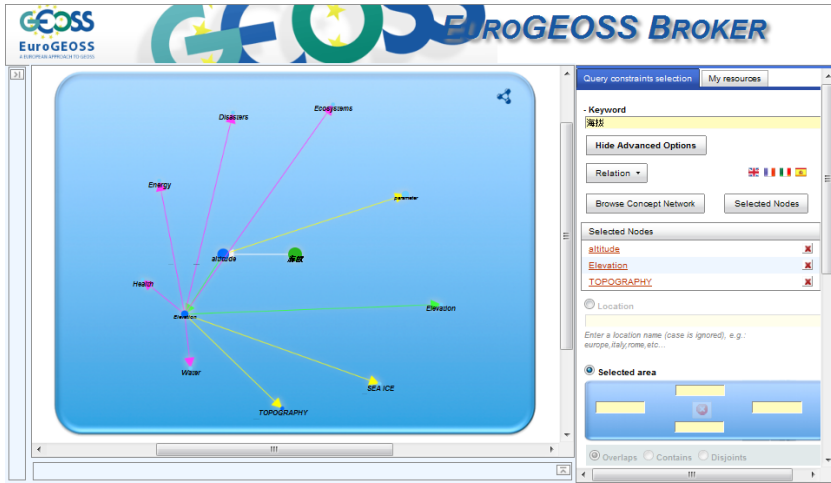


ISA Core Location Vocabulary (LOCN)

- Only 3 classes: location, address and geometry
- *Location*: includes the notions of “geographic name” and “geographic identifier” - from INSPIRE
- *Address*: modelled on the INSPIRE datatype “Address Representation”
- *Geometry*: abstract class – supports different geometry encodings / representations (e.g., WKT, GML, GeoJSON; RDF; geo: URI scheme, GeoHash)

Interlinking (multilingual) thesauri

- *Purpose*: Interoperable terminologies across communities & organisations
 - Local, regional, national, supra-national levels
 - Different sectors of Public Administrations (PAs)
 - Different scientific disciplines & domains
 - Different languages
- *Advanced uses*: Support to semantic and cross-language indexing and discovery, also in distributed data sources

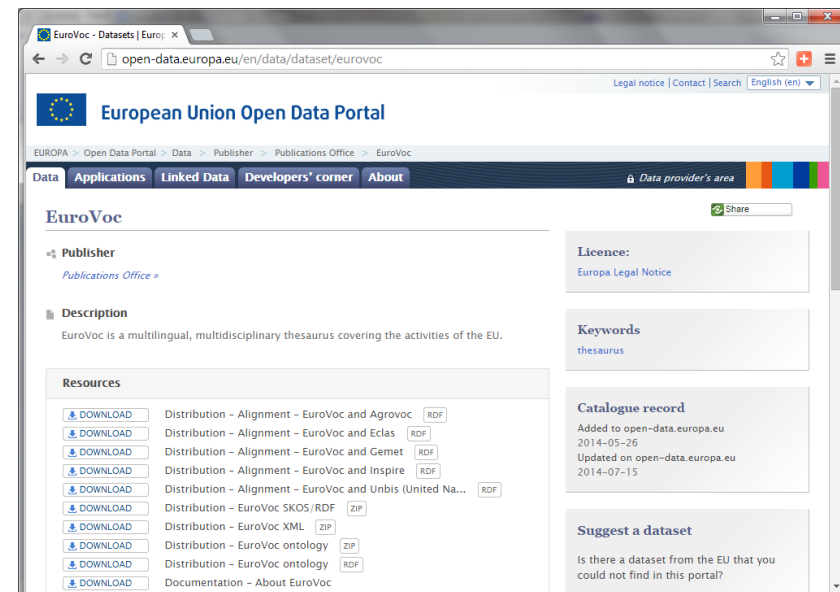


EuroGEOSS

Semantic broker, based on 6 interlinked multilingual thesauri (reference & thematic)

EU Publications Office

Semantic alignment of EuroVoc with other thesauri (currently, AGROVOC, ECLAS, **GEMET**, **INSPIRE**, UNBIS)



Data sharing, licensing and DRM

- *One of the main issues preventing data sharing and re-use*
- Interoperability requirements are about the ability to share, re-use and integrate data across sectors of PAs and scientific domains (+crowd-sourced data)
- Usability: the way sharing and re-use constraints are expressed must take into account how this information is used (e.g., for discovery and/or filtering purposes)
- *We are missing business models*
- Lesson learnt in INSPIRE, based on EU Member States experiences:
 - A solution is not at hand – issues across PA levels and sectors, and they are not only about intellectual property rights
 - Follow a light-weight, step-wise approach, and focus on practical issues (e.g., open up the data that have no sharing and re-use constraints)

Work under-way in the EU

- PSI:
 - *Guidelines on recommended standard licences, datasets and charging for the reuse of documents.*
OJ C 240, 24.07.2014, p. 1–10.
- INSPIRE:
 - Inventory (and, possibly) classification of licences
- INSPIRE + EU ISA Programme:
 - Study on AAA for data & services

Other examples (Open Data Institute)



The screenshot shows a web browser window with the URL <https://certificates.theodi.org>. The page features a large, colorful graphic of overlapping geometric shapes in shades of blue, green, yellow, and red. The main heading reads "Certify your open data" in a large, grey font. Below this, a sub-heading states "Show that it's easy to find, use and share". Two prominent buttons are visible: an orange button labeled "Create a certificate" and a blue button labeled "Browse all certificates". At the bottom of the page, there is a dark navigation bar containing the text "open data certificate™" with a "BETA" badge, a search bar with the placeholder "Search certificates" and a "Go" button, and links for "Register" and "Sign in".

Other examples (ODI & W3C)



Open Data Rights Statement Vocabulary

Latest Version
<http://schema.theodi.org/odrs>

Created
 2013-05-31

Last Modified
 2013-07-29

Authors
[Leigh Dodds](#)

Alternate Versions
[Turtle](#)

A vocabulary that supports the publication of Open Data information, copyright notices and attribution requirements.

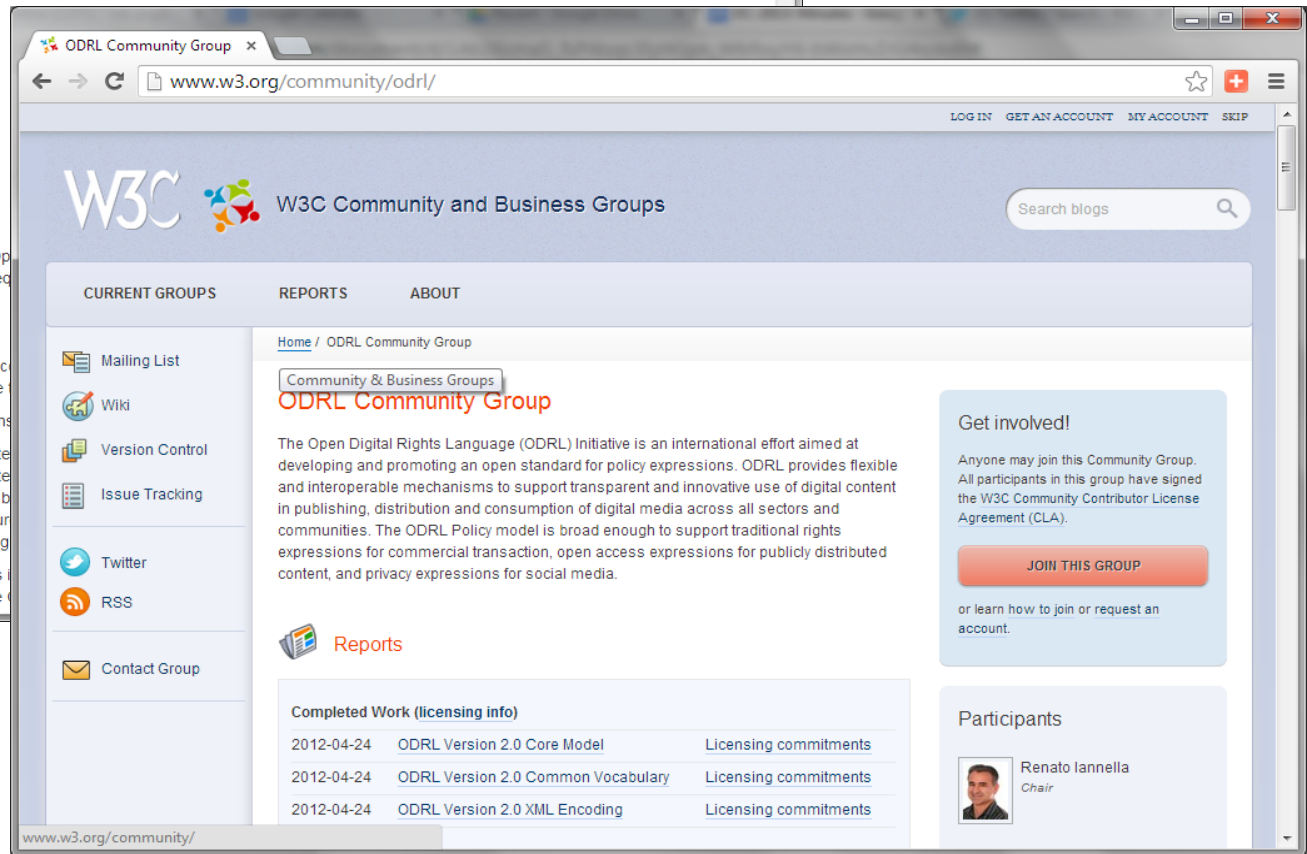
Introduction

Data published to the web should always be accompanied by, and importantly, a statement of the rights that relate to that data.

While legal requirements vary across jurisdictions, a common set of rights is needed to support the publication of Open Data.

- A reference to a licence or waiver that relates to the data.
- A reference to a licence or waiver that relates to the data.
- Notices, e.g. copyright notices, that should be published with the data.
- Guidance on a means of attributing the source of the data.
- Pointers to further information, e.g. further guidance on the data.

The Open Data Rights Statement vocabulary is inspired by related work from the Dublin Core and Creative Commons.



W3C Community and Business Groups

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Community & Business Groups
ODRL Community Group

The Open Digital Rights Language (ODRL) Initiative is an international effort aimed at developing and promoting an open standard for policy expressions. ODRL provides flexible and interoperable mechanisms to support transparent and innovative use of digital content in publishing, distribution and consumption of digital media across all sectors and communities. The ODRL Policy model is broad enough to support traditional rights expressions for commercial transaction, open access expressions for publicly distributed content, and privacy expressions for social media.

Reports

Completed Work (licensing info)

Date	Work	Licensing commitments
2012-04-24	ODRL Version 2.0 Core Model	Licensing commitments
2012-04-24	ODRL Version 2.0 Common Vocabulary	Licensing commitments
2012-04-24	ODRL Version 2.0 XML Encoding	Licensing commitments


Get involved!

Anyone may join this Community Group. All participants in this group have signed the W3C Community Contributor License Agreement (CLA).

[JOIN THIS GROUP](#)

or learn how to join or request an account.

Participants

 Renato Iannella
 Chair

Future plans

- Promoting the use of INSPIRE
 - A number of projects are working on the re-use of INSPIRE data for a number of applications (smeSpire, eEnvPlus, InGeoCloudS, GeoKnow, SmartOpenData, MELODIES, ...)
 - Thematic pilots in policy areas related to environment (e.g., water, air, soil and raw materials, transport systems)
- An eye on relevant standardisation activities
 - **RDA (Geospatial, DFT, Metadata, PID, ...)**
 - Joint W3C/OGC Spatial Data on the Web Working Group
 - W3C Data on the Web Best Practices Working Group

Thanks!

- **EU implementation of the G8 Open Data Charter**
<http://ec.europa.eu/digital-agenda/en/news/eu-implementation-g8-open-data-charter>
- **Guidelines on recommended standard licences, datasets and charging for the reuse of documents**
http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2014.240.01.0001.01.ENG
- **INSPIRE Registry**
<http://jrc.ec.europa.eu/registry/>
- **RDF & PIDs for INSPIRE**
https://ies-svn.jrc.ec.europa.eu/projects/rdf-pids/wiki/ARE3NA_RDF+_PIDs_study
- **Alignment of INSPIRE metadata with DCAT-AP**
https://ies-svn.jrc.ec.europa.eu/projects/metadata/wiki/Alignment_of_INSPIRE_metadata_with_DCAT-AP
- **Alignments INSPIRE / EuroVoc – Publications Office of the EU**
<https://open-data.europa.eu/en/data/dataset/eurovoc/resource/df6752af-d86f-463d-a200-0fe658bff053>

andrea.perego@jrc.ec.europa.eu