The European Commission's science and knowledge service

Joint Research Centre

GeoDCAT-AP
The story so far

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GeoDCAT-AP Webinar

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What is GeoDCAT-AP

- Geospatial extension to **DCAT-AP** (DCAT application profile for data portals in Europe)
  - DCAT-AP is a metadata profile meant to provide an interchange format for data portals operated by EU Member States
  - DCAT-AP is based on and compliant with the W3C Data Catalog (DCAT) vocabulary
- Developed in the framework of the EU Programme "Interoperability Solutions for European Public Administrations" (**ISA**)
- GeoDCAT-AP is meant to provide a DCAT-AP compliant representation for the set of metadata elements included in
  - **INSPIRE** metadata
  - The core profile of **ISO 19115:2003**

INSPIRE · Infrastructure for Spatial information in Europe

isa

DCAT
APPLICATION
PROFILE FOR
EUROPEAN
DATA PORTALS

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GeoDCAT-AP: Objectives

- *The GeoDCAT-AP specification does not replace the INSPIRE Metadata Regulation nor the INSPIRE Metadata Technical Guidelines based on ISO 19115:2003 and ISO 19119*

- Its purpose is to give owners of geospatial metadata the possibility to achieve more by providing an additional RDF syntax binding

- Its basic use case is to make spatial datasets, data series, and services searchable on general data portals, thereby making geospatial information better searchable across borders and sectors

GeoDCAT-AP: Mappings (1/4)

INSPIRE	ISO 19115:2003 Core	DCAT-AP	GeoDCAT-AP
Metadata point of contact	Metadata point of contact		Yes
Metadata date	Metadata date stamp	Yes	Yes
Metadata language	Metadata language	Yes	Yes
	Metadata character set		Yes
	Metadata file identifier		Yes
	Metadata standard name		Yes
	Metadata standard version		Yes
Resource title	Dataset title	Yes	Yes
Temporal reference - Date of creation / publication / last revision	Dataset reference date	Partially – creation date not included	Yes
Resource abstract	Abstract describing the dataset	Yes	Yes

GeoDCAT-AP: Mappings (2/4)

INSPIRE	ISO 19115:2003 Core	DCAT-AP	GeoDCAT-AP
Resource language	Dataset language	Yes	Yes
Topic category	Dataset topic category		Yes
Geographic bounding box	Geographic location of the dataset (by four coordinates or by geographic identifier)	Yes	Yes
Character encoding	Dataset character set		Yes
Temporal reference - Temporal extent	Additional extent information for the dataset (vertical and temporal)	Yes	Yes
Lineage	Lineage	Yes	Yes
Spatial representation type	Spatial representation type		Yes
Encoding	Distribution format	Yes	Yes
Spatial resolution	Spatial resolution of the dataset		Yes

GeoDCAT-AP: Mappings (3/4)

INSPIRE	ISO 19115:2003 Core	DCAT-AP	GeoDCAT-AP
Responsible organisation	Dataset responsible party	Partially – only 3 of the 11 responsible party roles are supported	Yes
Resource locator	On-line resource	Yes	Yes
Coordinate reference system; Temporal reference system	Reference system		Yes
Conformity		Yes	Yes
Resource type		Partially – only datasets, series and discovery services	Yes
Spatial data service type			Yes
Keyword		Partially – only for datasets and dataset series	Yes
Coupled resource			Yes

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GeoDCAT-AP: Mappings (4/4)

INSPIRE	ISO 19115:2003 Core	DCAT-AP	GeoDCAT-AP
Unique resource identifier		Yes	Yes
Conditions for access and use		Yes	Yes
Limitations on public access		Yes	Yes
Maintenance information - Maintenance and update frequency		Yes	Yes
Data quality – Logical consistency – Topological consistency – Conformance results			Yes
Data quality – Logical consistency – Conceptual consistency – Conformance results			Yes
Data quality – Logical consistency – Domain consistency – Conformance results			Yes

INSPIRE & GeoDCAT-AP: Why?

Agree upon a common RDF representation

- RDF is increasingly being used as an alternative representation of INSPIRE metadata

- Without a harmonised INSPIRE-to-RDF mapping, metadata interoperability is lost

Facilitate cross-sector sharing of INSPIRE metadata

- INSPIRE metadata are already being harvested by and published in cross-domain data catalogues at the national and/or regional level

- INSPIRE metadata are harvested and published also on the European Data Portal, which uses DCAT-AP as a metadata interchange format

GeoDCAT-AP: Current status

- Final specification (GeoDCAT-AP 1.0) released in December 2015:
  https://joinup.ec.europa.eu/asset/dcat_application_profile/asset_release/geodcat-ap-v10

- Reference implementation & API:
  https://github.com/SEMICeu/iso-19139-to-dcat-ap

- GeoDCAT-AP implementations, including CSW-based ones, are already available:
  https://joinup.ec.europa.eu/node/144843

Implementation of GeoDCAT-AP in Italy (1/2)

Starting points:

- AgID is in charge of managing the 2 national Catalogs for spatial data (INSPIRE profile) and open data (DCAT-AP);
- Currently, in case of open spatial data, Italian PAs document data in both Catalogs with: • *a double burden;* • *possible misalignments between the metadata published;* • *information not updated;*
- Italian metadata profile for spatial data includes some extensions both to INSPIRE profile and to ISO 19115 core, as well as the metadata profile for open data extends DCAT-AP;

Open data

Spatial data

dati.gov.it

geodati.gov.it
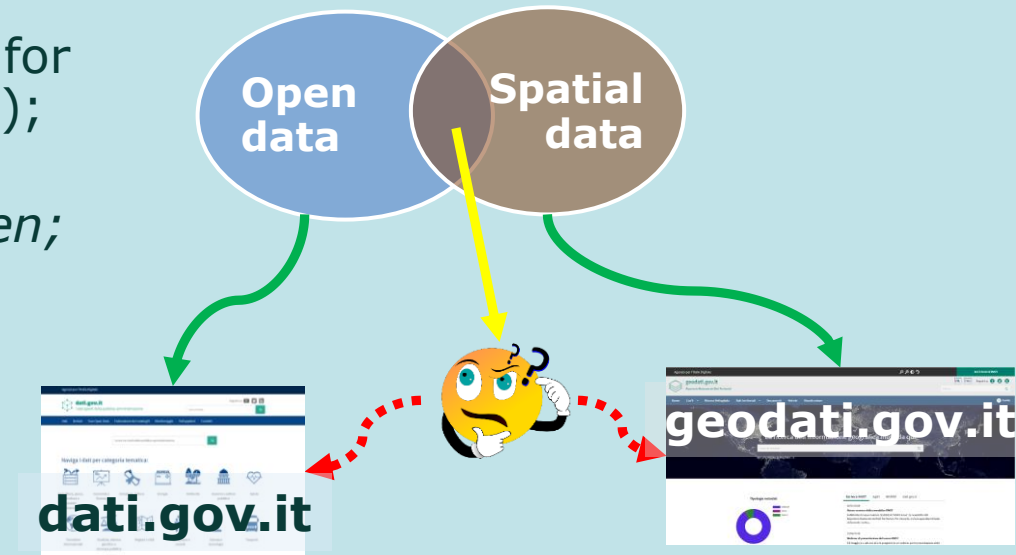
GeoDCAT-AP_IT, a process not only an implementation

- One of the actions in the Three-Year Plan 2017-2019 for ICT in the Public Administration;
- National guidelines (GeoDCAT-AP_IT) published to take into account the Italian extensions and also define some rules at organizational level:

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Implementation of GeoDCAT-AP in Italy (2/2)

- *Spatial data, that are also open data, shall be documented **ONLY** in the Catalog for spatial data (RNDT);*
- *RNDT will make available the metadata also in the Catalog of open data through GeoDCAT-AP_IT;*
- *PAs are recommended to adopt the same approach for local catalogs.*

Tools being implemented

- Extension of XSLT script;

- CSW and REST endpoints extended to query metadata in "GeoDCAT-AP format" in the RNDT (by also reusing the API);

- Harvester/viewer to enable and provide access to open spatial data also in the national catalogue of open data (dati.gov.it).

Issues

- Open data resources not easily identifiable mainly due to the license not clearly documented (e.g. by an URI).
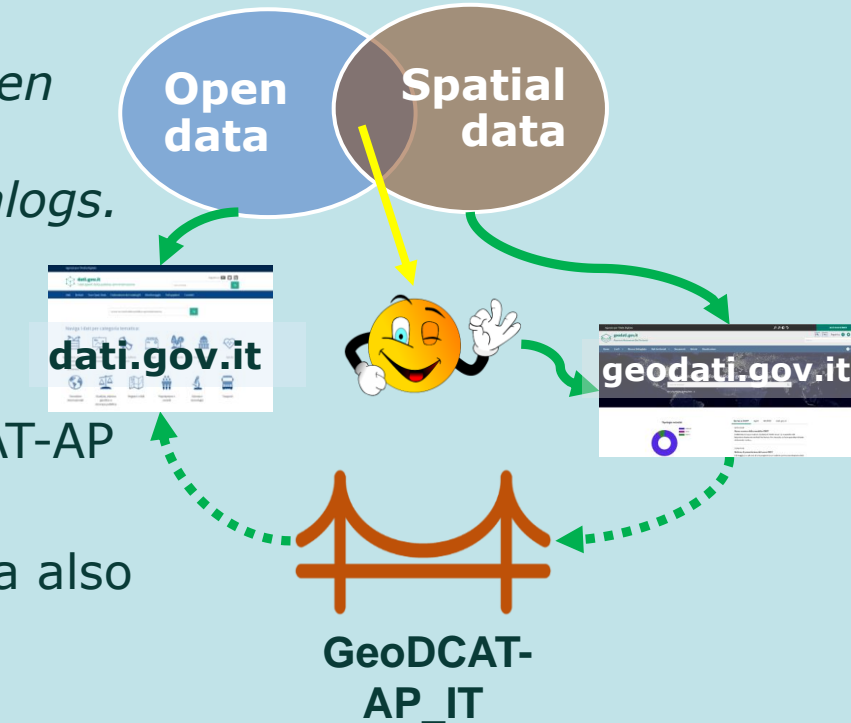
Other GeoDCAT-AP implementations

Case	Status	Focus area			
		Metadata input	Integrated portal	Publication as LOD	Information mapping
1. ESAFedEO/OBEOS	Pre-Prod	S	S	P	S
2. OGC testbed 12	Test	S	S	S	P
3. OTN project Geo DCAT-AP implementation	Prod	P	P	P	S
4. DataBio project GeoDCAT to KML convertor	Prod	S	P	S	S
5. Czech republic Geo Portal	Prod	S	P	S	P
6. Dutch testbed Geonovum	Test	-	P	P	P
7. Information Flanders Geo DCAT-AP implementation	Test	P	P	S	P

Status: Prod = Production; Pre = Pre production; Test = Test
Focus area: P = Primary focus; S = Secondary focus; N = No focus area

GeoDCAT-AP & Standards Bodies

- GeoDCAT-AP has been brought to the attention of standards body, in particular the **Open Geospatial Consortium** (OGC) and the **World Wide Web Consortium** (W3C), in order to be consolidated with further review and to contribute the identified issues

- Some of the solutions defined in GeoDCAT-AP for modelling spatial and data quality information have been integrated in W3C specifications – including the "**Spatial Data on the Web Best Practices**" specification developed by the joint W3C/OGC Spatial Data on the Web Working Group

- In April 2018, **OGC** launched the process of adopting an **OGC best practice** document on GeoDCAT-AP

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OGC Metadata & Catalog DWG

- Work on GeoDCAT-AP will be integrated in the OGC Metadata & Catalog DWG

- GeoDCAT-AP best practice document might become an engineering report or be extended with example implementations

- Discussions have started to propose GeoDCAT-AP as an **OGC community standard**

- Goal: To promote GeoDCAT towards a worldwide standard supported by the wider OGC community

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GeoDCAT-AP: Lessons learnt

1. Limited use of **global & persistent identifiers** (in particular, HTTP URIs) in geospatial metadata records

2. Lack of common practices on how to model some information in RDF. This includes:
   - Service / API-based data access
   - Data quality, spatial / temporal reference systems, spatial / temporal resolution

These issues do not prevent the effective exploitation of GeoDCAT-AP, and they can be solved on an ad-hoc *basis*

However, the widespread adoption of best practices to address them would be beneficial to the interoperability of geospatial data and metadata across sectors and platforms

Conclusions

- **GeoDCAT-AP** provides a suite of tools that enables owners of geospatial metadata to publish an alternative and harmonised representation of INSPIRE / ISO 19115 records without modifying the underlying infrastructure

- A **number** of geospatial and general-purpose **data catalogues** (e.g., the European Data Portal) are already implementing and using GeoDCAT-AP for cross-catalogue metadata sharing

- Although in its current version GeoDCAT-AP does not provide a full coverage of ISO 19115, and it is not based on the latest version of this standard, **future revisions** may address these gaps

- The development and implementation of GeoDCAT-AP have been also beneficial in identifying the **critical issues for cross-sector interoperability of geospatial metadata**, which cannot be addressed only by technical solutions, but require actions also in the current data governance practices

Thanks!

Any questions?
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