
BEHIND THE MAGIC OF LINKED DATA

#FOSS4G-NOR

September 2014, Oslo



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Wikipedia defines Linked Data as "a term used to describe a recommended best practice for exposing, sharing, and connecting pieces of **data, information,** and **knowledge** on the Semantic Web using URIs and RDF."

<http://linkeddata.org/home>

http:// URIs

RDF

OWL

SPARQL

Ontologies

Vocabularies



**Triples
stores**

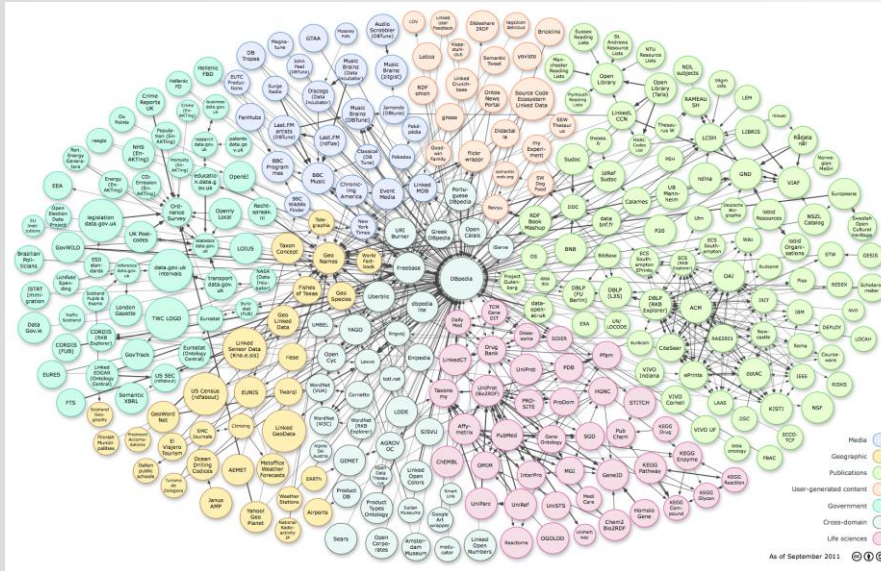
Raw data!

Leading the track



Cadastral Data

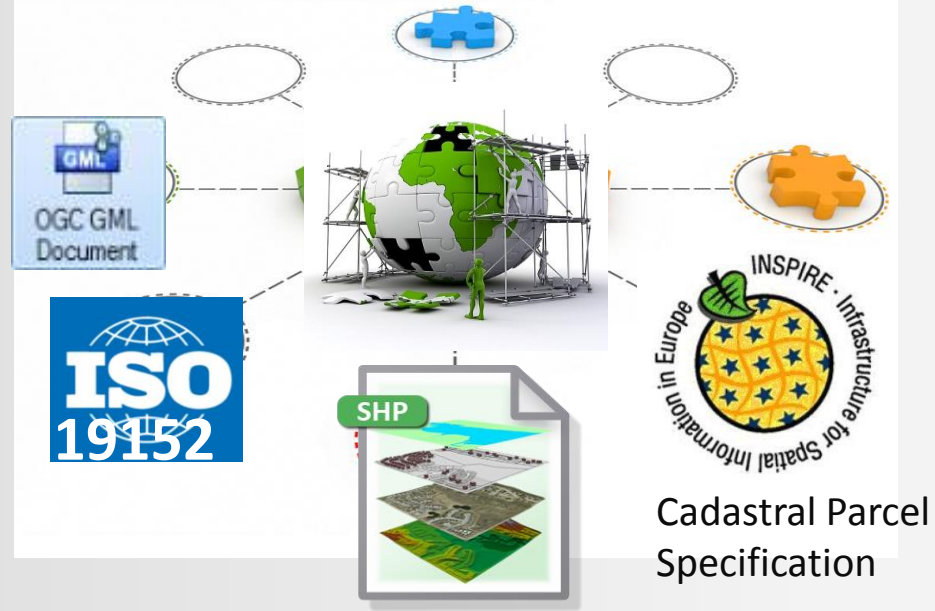
- Basis for land tributes
- Importance of geographical aspects (Annex I INSPIRE)
- Geographical unit under homogeneous real property rights and unique ownership
- Semantic integration efforts, connecting cadastral data with:
Public services, demographic statistics, planning...



Linked Open Data cloud diagram
from linkeddata.org

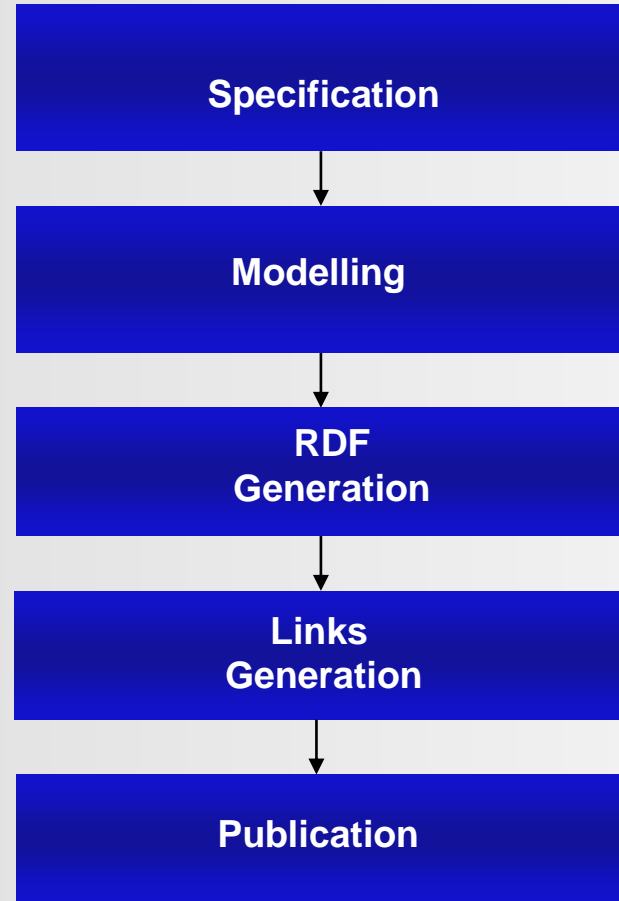


”Unlinked” data



Linked Data

Steps:



Integrating geographical information in the Linked Digital Earth.
International Journal of Digital Earth
Volume 7, Issue 7, 2014. Special Issue:
Digital Earth Applications:
Technological design and Organizational Strategies

Specification

Modelling

**RDF
Generation**

**Links
Generation**

Publication

Geospatial information

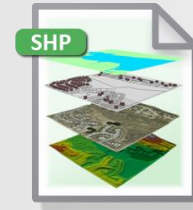
Source: INSPIRE format GML files and the SHPs provided by Sede Electrónica del Catastro

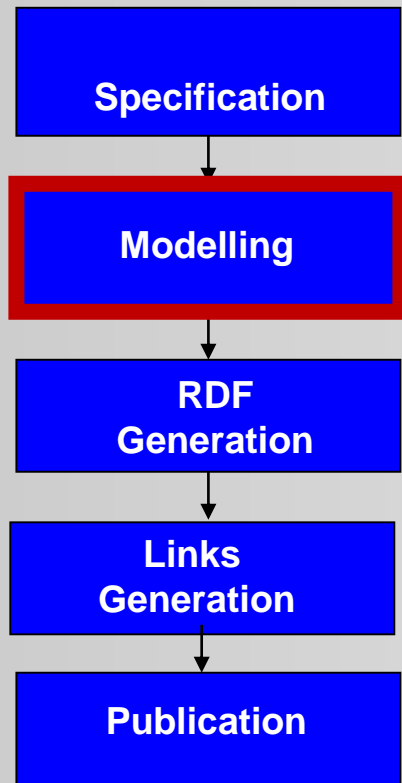
<https://www.sedecatastro.gob.es/>

Geometry

“Simple features” GM_Surface (recommended by INSPIRE)

Data Specifications: INSPIRE_DataSpecification_CP_v3.0





Models Reused:

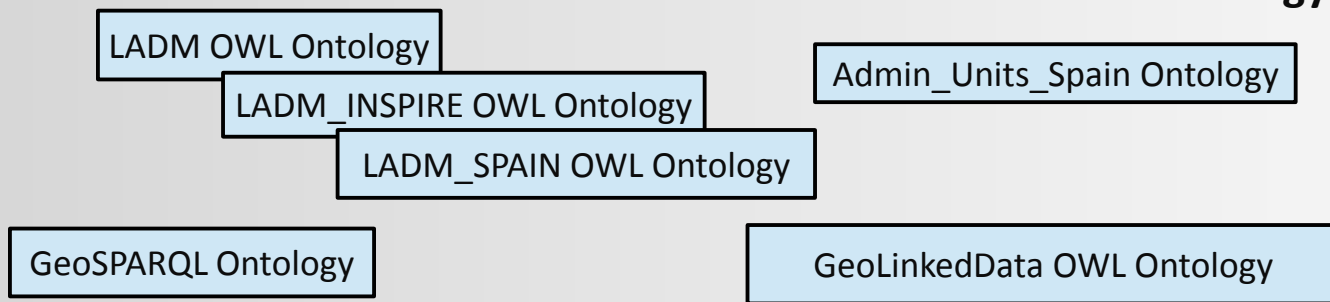
- LADM OWL Ontology provided by the University of DELFT (Peter Van Oosterom)
- FAO (Foods and Agriculture Organization) OWL Geopolitical Ontology
- GeoSPARQL Ontology
- GeoLinkedData Ontology
- WGS84 Vocabulary

Models built:

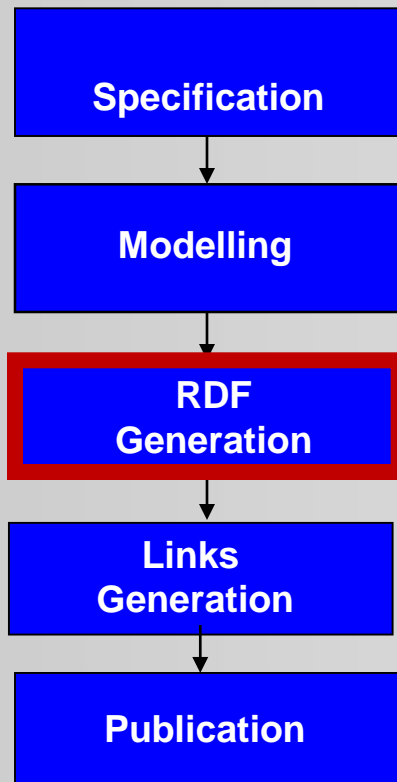
- LADM_INSPIRE OWL Ontology from INSPIRE Data Models
- Admin_Units_Spain Ontology



NeOn methodology



RDF Generation Generation of geospatial RDF



From SHP to RDF Using shp2RDF library and geometry2RDF library



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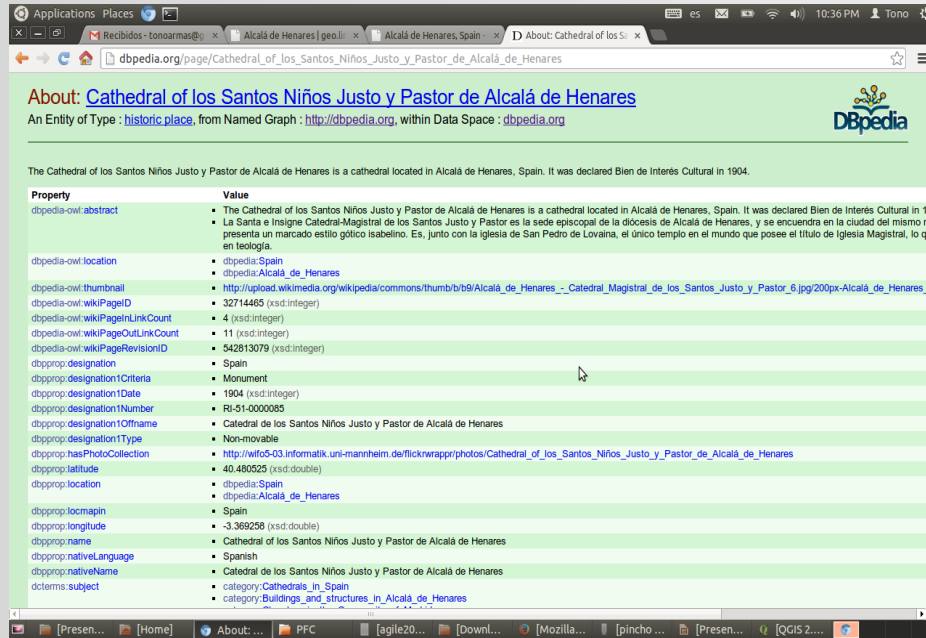
Specification

Modelling

RDF
Generation

Links
Generation

Publication



Applications Places

Recibidos-tonoarmas@... | Alcalá de Henares | geol... | Alcalá de Henares, Spain | D About: Cathedral of los S...

dbpedia.org/page/Cathedral_of_los_Santos_Niños_Justo_y_Pastor_de_Alcalá_de_Henares

About: [Cathedral of los Santos Niños Justo y Pastor de Alcalá de Henares](#)

An Entity of Type: [historic place](#), from Named Graph: [http://dbpedia.org](#), within Data Space: [dbpedia.org](#)

The Cathedral of los Santos Niños Justo y Pastor de Alcalá de Henares is a cathedral located in Alcalá de Henares, Spain. It was declared Bien de Interés Cultural in 1904.

Property	Value
dbpedia-owl:abstract	<ul style="list-style-type: none">The Cathedral of los Santos Niños Justo y Pastor de Alcalá de Henares is a cathedral located in Alcalá de Henares, Spain. It was declared Bien de Interés Cultural in 1904.La Santa e Insigne Catedral-Magistral de los Santos Justo y Pastor es la sede episcopal de la diócesis de Alcalá de Henares, y se encuentra en la ciudad del mismo nombre. Presenta un marcado estilo gótico isabelino. Es, junto con la iglesia de San Pedro de Lovaina, el único templo en el mundo que posee el título de Iglesia Magistral, lo que le confiere un estatus único.
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dbpprop:longitude	<ul style="list-style-type: none">-3.369258 (xsd:double)
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<http://dbpedia.org/>

SameAs



RDF catastro

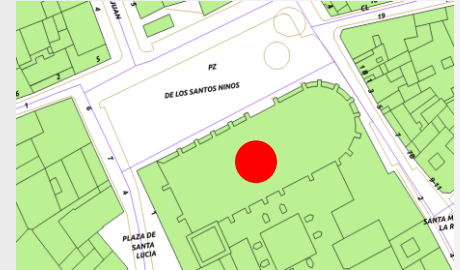
SameAs

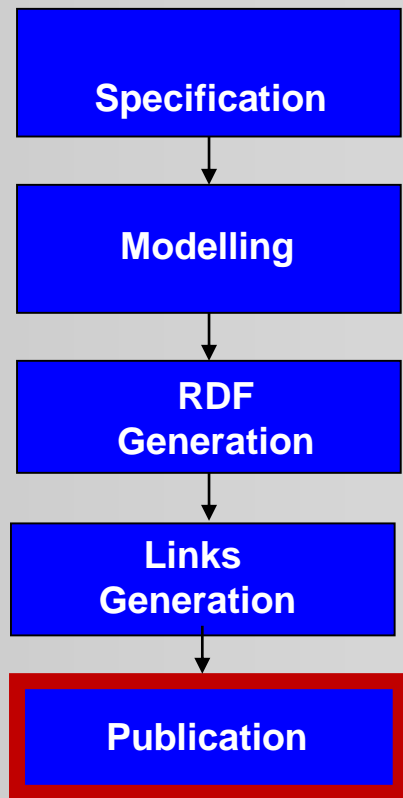


URI: <http://catastroLinkedData/8813801VK6881S>

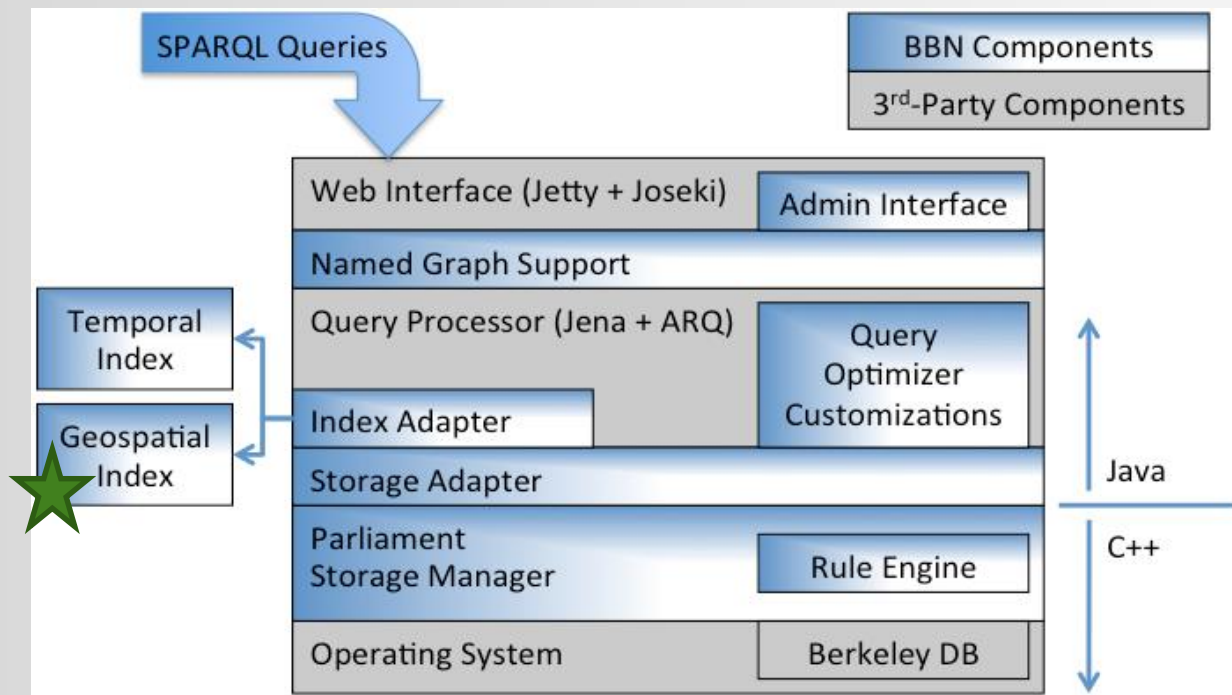
Link Generation with:

- Silk
- GIS tools





- Parliament supports GeoSPARQL



<http://parliament.semwebcentral.org/>

Main results

- An ontology network related to the LADM ISO19152 and INSPIRE Cadastral Parcel Specifications
- From unstructured cadastral data to Linked Open Data
Enriching Cadastral Data with Dbpedia

Objectives

- Enriching Cadastral data with more datasets (Statistics and most relevant INSPIRE themes)

Thank you for your attention!

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