premessa

http://www.smespire.eu/webinar-series/

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INSPIRE

- stabilisce regole generali per realizzare infrastrutture di dati geografici in Europa
- definisce 34 temi, dal catasto agli indirizzi, dai biotopi alle reti di trasporto, etc.
- la direttiva obbliga gli enti pubblici che mantengono o possiedono dati relativi ai 34 temi a renderli accessibili secondo i Regolamenti (IRs) e le Data Specifications (TG)

Requirements *vs* Recommendations

Allegato I

Requirement X Requirements are shown using this style.

Recommendation X Recommendations are shown using this style.

Allegati II e III

IR Requirement
Article / Annex / Section no.
Title / Heading

This style is used for requirements contained in the Implementing Rules on interoperability of spatial data sets and services (Commission Regulation (EU) No 1089/2010).

TG Requirement X This style is used for requirements for a specific technical solution proposed in these Technical Guidelines for an IR requirement.

Recommendation X Recommendations are shown using this style.

Requirements *vs* Recommendations

Theme-specific Requirements

1. Each instance of spatial object type ***AdministrativeUnit***, except for the country level unit representing a Member State and co-administered units, shall refer exactly to one unit at a higher level of administrative hierarchy. This correspondence shall be expressed by the ***upperLevelUnit*** association role of Administrati-veUnit spatial object type.

Recommandation:

The value of '***language***' attribute for ***AdministrativeUnit.name*** (GeographicalName DataType) should be provided, except for the situation that the data producer does not have such information.

Abstract Test Suite

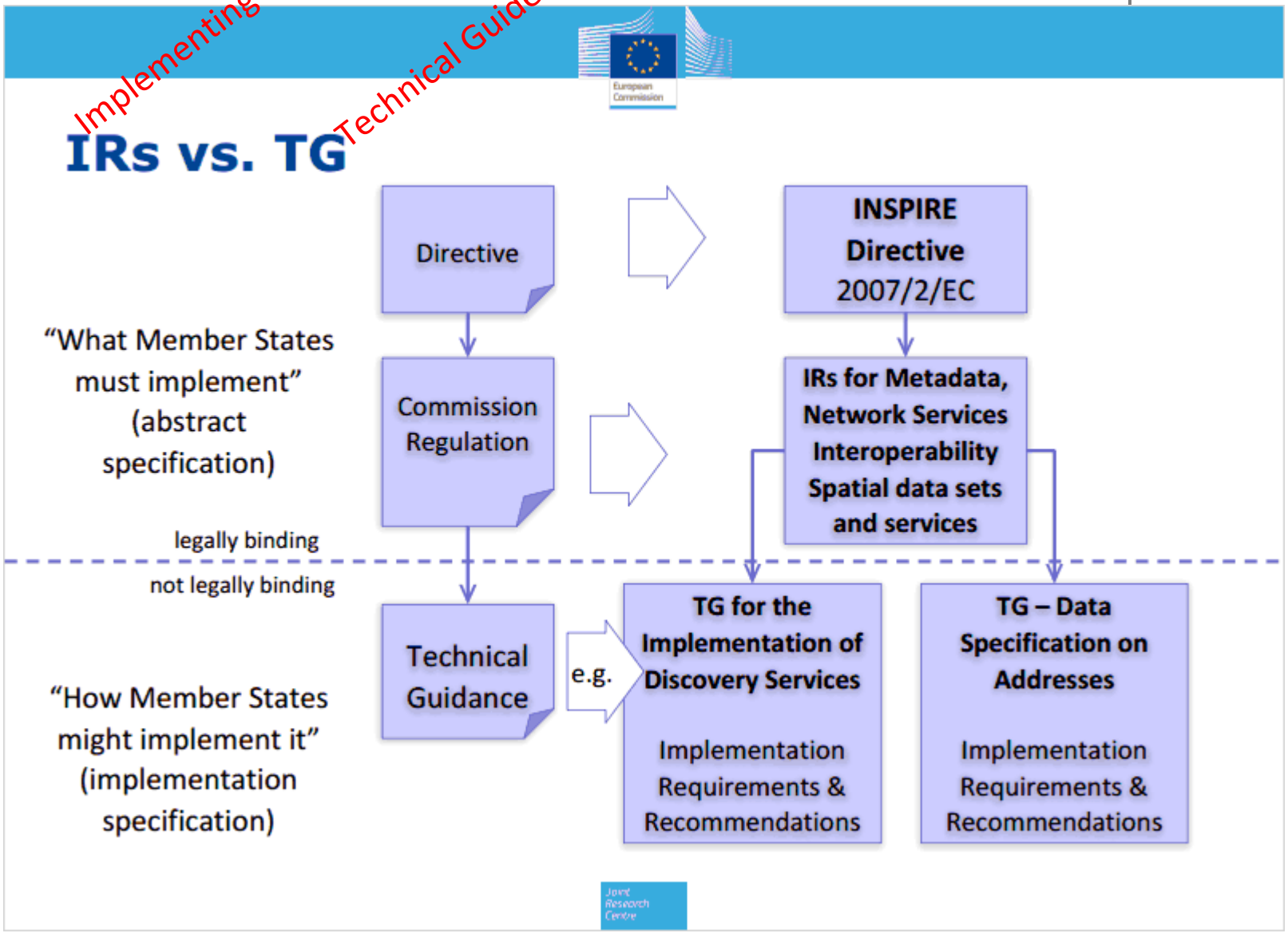
Annex A delle Technical Guidelines.

Contiene una serie di test con i quali valutare se un dataset rispetta i requirement inclusi nel Regolamento e nelle Technical Guidelines.

Part 1: valuta la conformità con il Regolamento ISDSS
Part 2: valuta la conformità con i TG requirements

Implementing Rules

Technical Guidelines



http://tinyurl.com/krh329m

obblighi

- i regolamenti sono *binding* (obbligatori) e definiscono il “cosa”, le specifiche non lo sono e definisco il “come”
- ogni Pubblica Amministrazione (EU28) deve mettere a disposizione:
  - metadati (almeno un catalogo nazionale)
  - servizi di visualizzazione e download
  - dati geografici armonizzati (34 temi)

regolamento ISDSS

Attributes of the spatial object type AdministrativeUnit

Attribute	Definition	Type	Voidability
beginLifespanVersion	Date and time at which this version of the spatial object was inserted or changed in the spatial data set.	DateTime	voidable
country	Two-character country code according to the Interinstitutional style guide published by the Publications Office of the European Union.	CountryCode	
endLifespanVersion	Date and time at which this version of the spatial object was superseded or retired in the spatial data set.	DateTime	voidable
geometry	Geometric representation of spatial area covered by this administrative unit.	GM_MultiSurface	
inspireId	External object identifier of the spatial object.	Identifier	
name	Official national geographical name of the administrative unit, given in several languages where required.	GeographicalName	
nationalCode	Thematic identifier corresponding to the national administrative codes defined in each country.	CharacterString	
nationalLevel	Level in the national administrative hierarchy, at which the administrative unit is established.	AdministrativeHierarchyLevel	
nationalLevelName	Name of the level in the national administrative hierarchy, at which the administrative unit is established.	LocalisedCharacterString	voidable

regolamento ISDSS

Attributes of the spatial object type AdministrativeUnit

Attribute	Definition	Type	Voidability
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name			
nationalCode	each country.		
nationalLevel	Level in the national administrative hierarchy, at which the administrative unit is established.	AdministrativeHierarchyLevel	
nationalLevelName	Name of the level in the national administrative hierarchy, at which the administrative unit is established.	LocalisedCharacterString	voidable

amendment

7. In point 4.4.1, the following table is added:

Allowed values for the code list AdministrativeHierarchyLevel

Value	Definition
1stOrder	Highest level in the national administrative hierarchy (country level).
2ndOrder	2nd level in the national administrative hierarchy.
3rdOrder	3rd level in the national administrative hierarchy.
4thOrder	4th level in the national administrative hierarchy.
5thOrder	5th level in the national administrative hierarchy.
6thOrder	6th level in the national administrative hierarchy.

http://inspire.jrc.ec.europa.eu/index.cfm/pageid/2

specifica tecnica

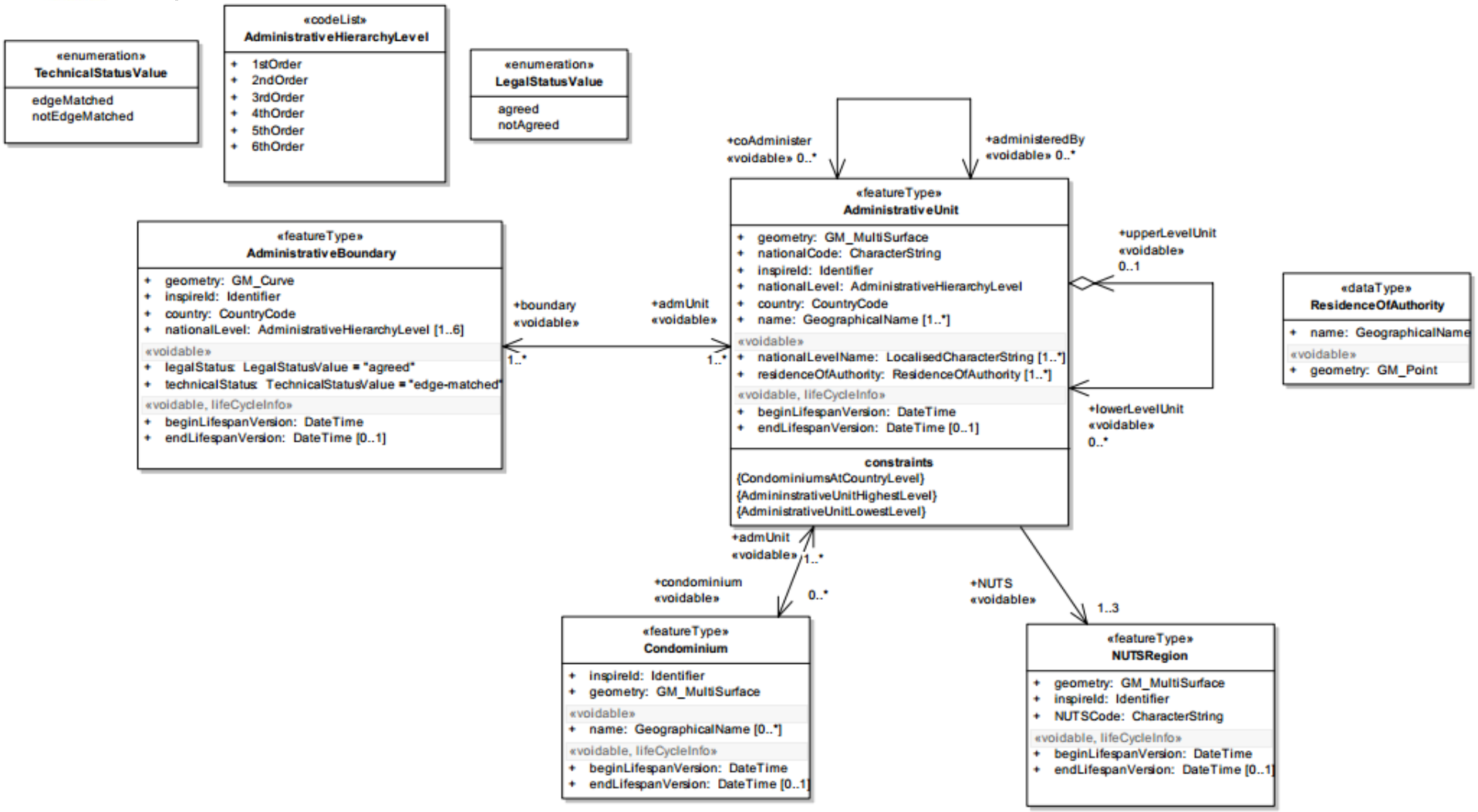
INSPIRE
Infrastructure for Spatial Information in Europe

D2.8.I.4 INSPIRE Data Specification on Administrative units – Guidelines

Title	D2.8.I.4 INSPIRE Data Specification on *Administrative units* – Guidelines
Creator	INSPIRE Thematic Working Group Administrative units
Date	2010-04-26
Subject	INSPIRE Data Specification for the spatial data theme *Administrative units*
Publisher	INSPIRE Thematic Working Group Administrative units
Type	Text
Description	This document describes the INSPIRE Data Specification for the theme *Administrative units*
Contributor	Members of the INSPIRE Thematic Working Group Administrative units
Format	Portable Document Format (pdf)
Source	
Rights	public
Identifier	INSPIRE_DataSpecification_AU_v3.0.1.pdf
Language	En
Relation	Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)
Coverage	Project duration

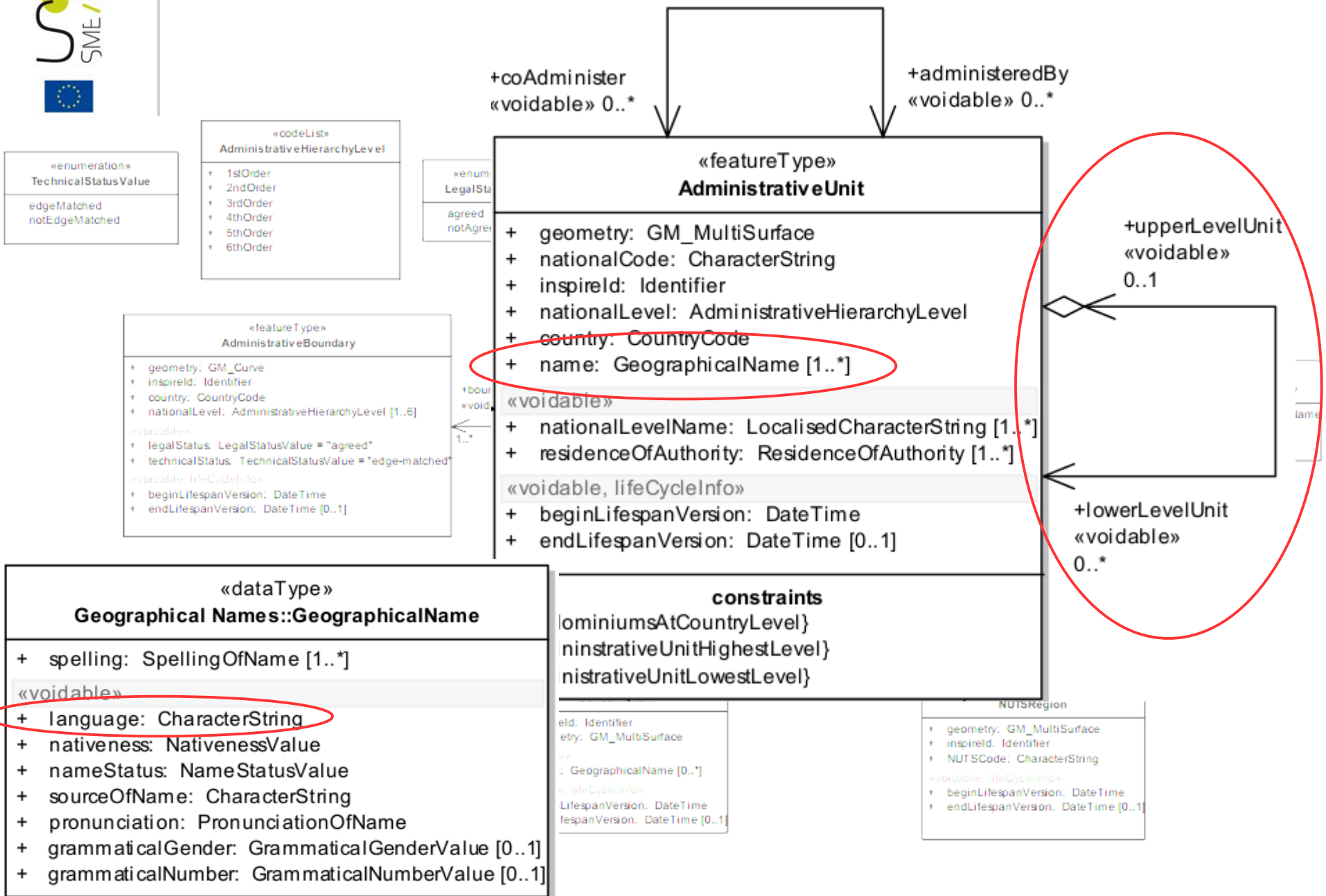
http://inspire-twg.jrc.ec.europa.eu/data-model/approved/r937/

specifica tecnica

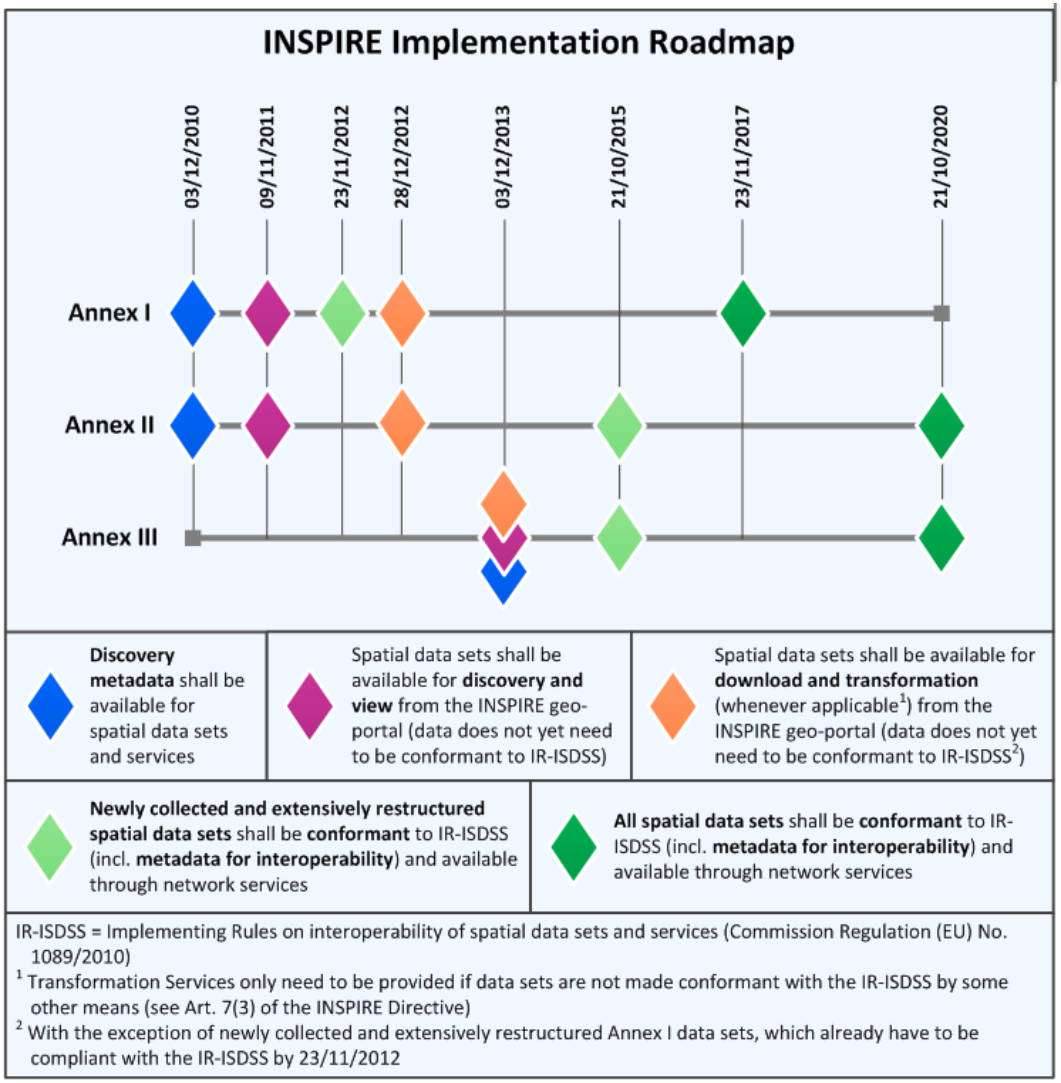


http://inspire-twg.jrc.ec.europa.eu/data-model/approved/r937/

specifica tecnica



roadmap



http://inspire.jrc.ec.europa.eu/index.cfm/pageid/44

dati

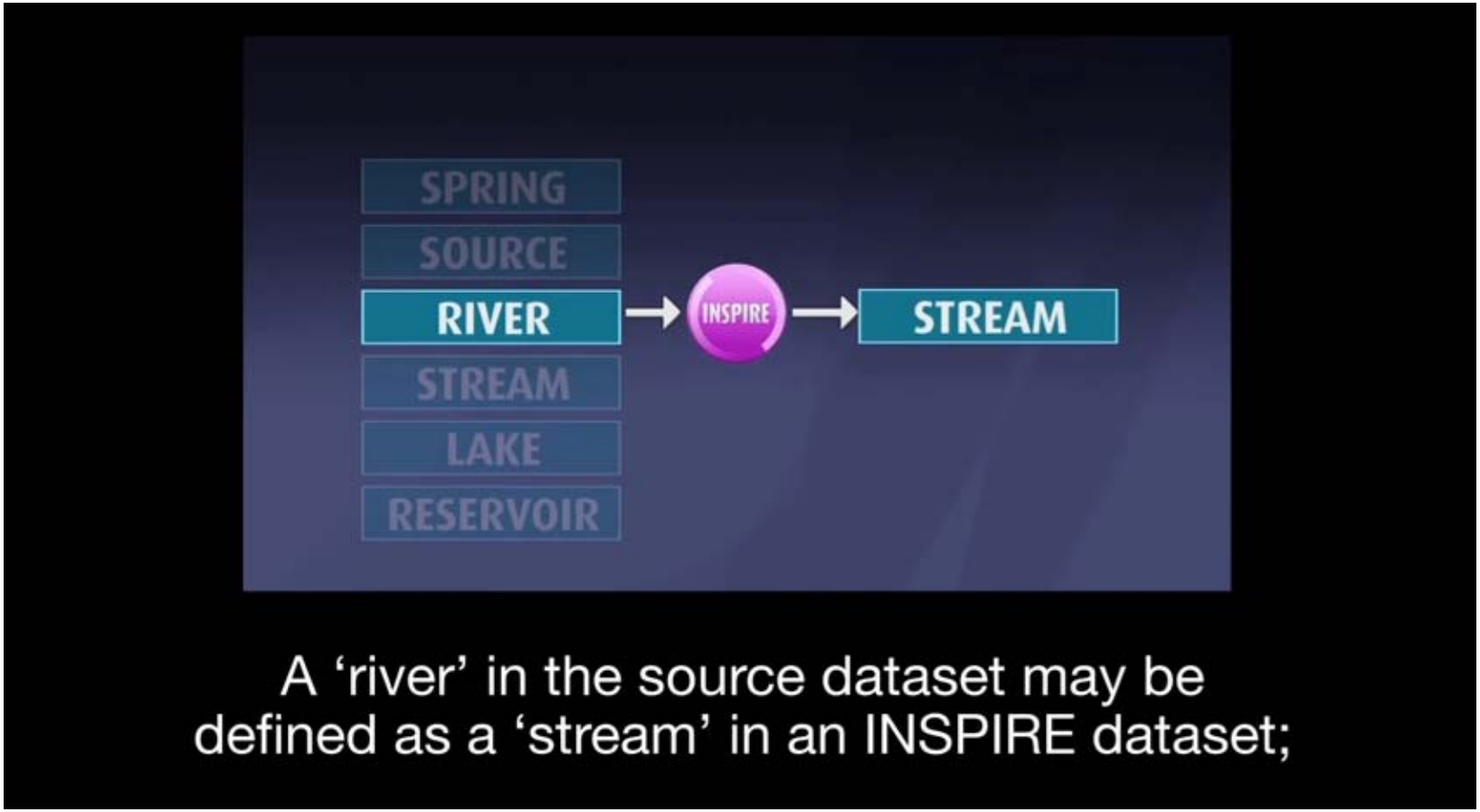
- per mettere a disposizione dati armonizzati occorre:
  - nel caso di nuove acquisizioni: usare i modelli dati INSPIRE come base
  - nel caso di dati esistenti: trasformarli (*schema transformation*)

in pratica

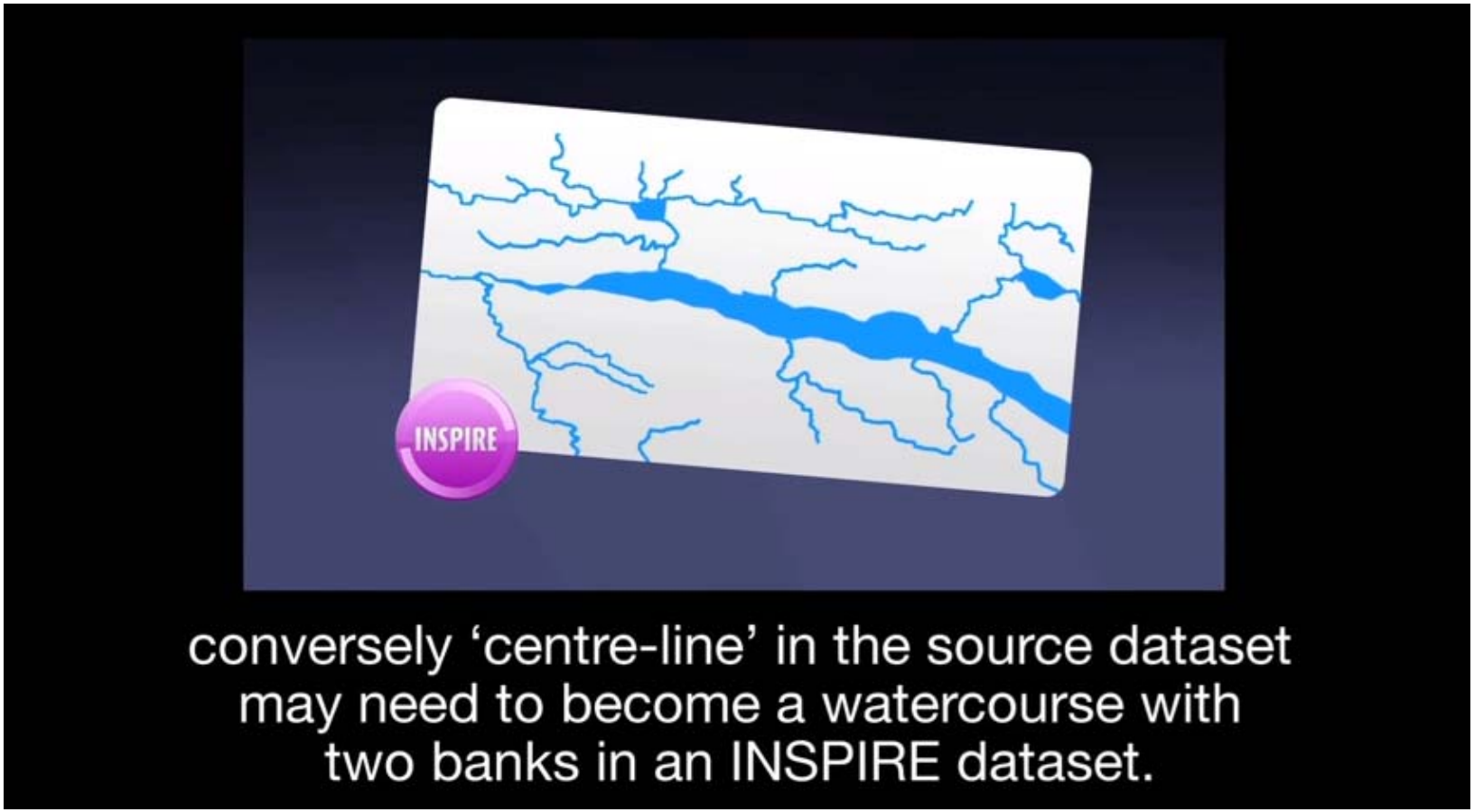
- se per esempio i dati di una PA sono strutturati in classi poligonali diverse
  - Edifici ad uso residenziale
  - Edifici per servizi pubblici
  - …
- … occorre che siano resi disponibili in una classe (*Buildings*) unica, con attributi comuni secondo quanto previsto da INSPIRE

pertanto

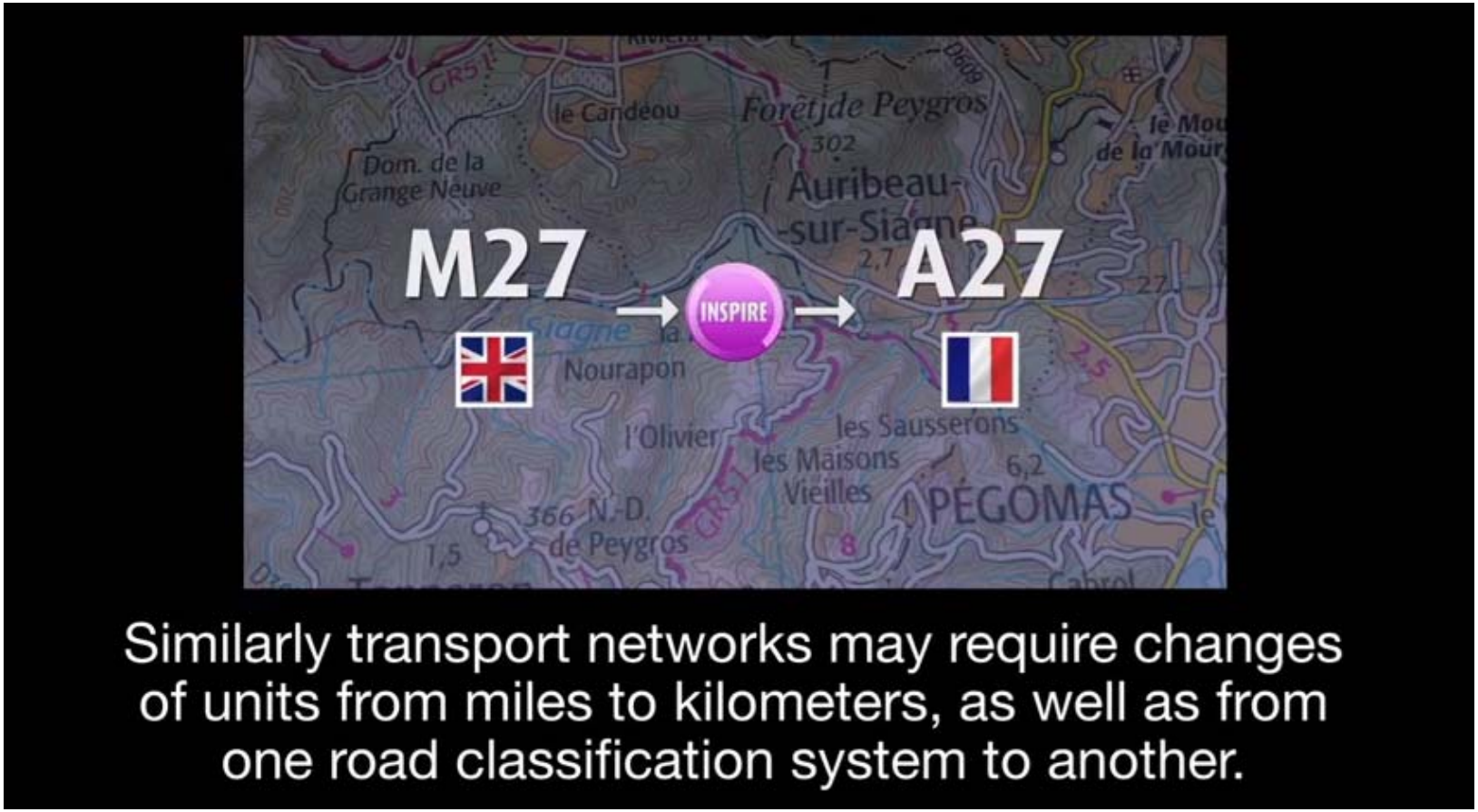
- nel caso di dati esistenti, occorre trasformarli; le possibilità sono diverse:
  - da database a database (e poi GML)
  - da database direttamente a GML
  - da GML a GML
- in tutti i casi è necessario “mappare” i propri dati (a livello di classe, attributo e valori) rispetto alle DS INSPIRE



http://www.youtube.com/watch?v=AyGog52ZRRY



http://www.youtube.com/watch?v=AyGog52ZRRY



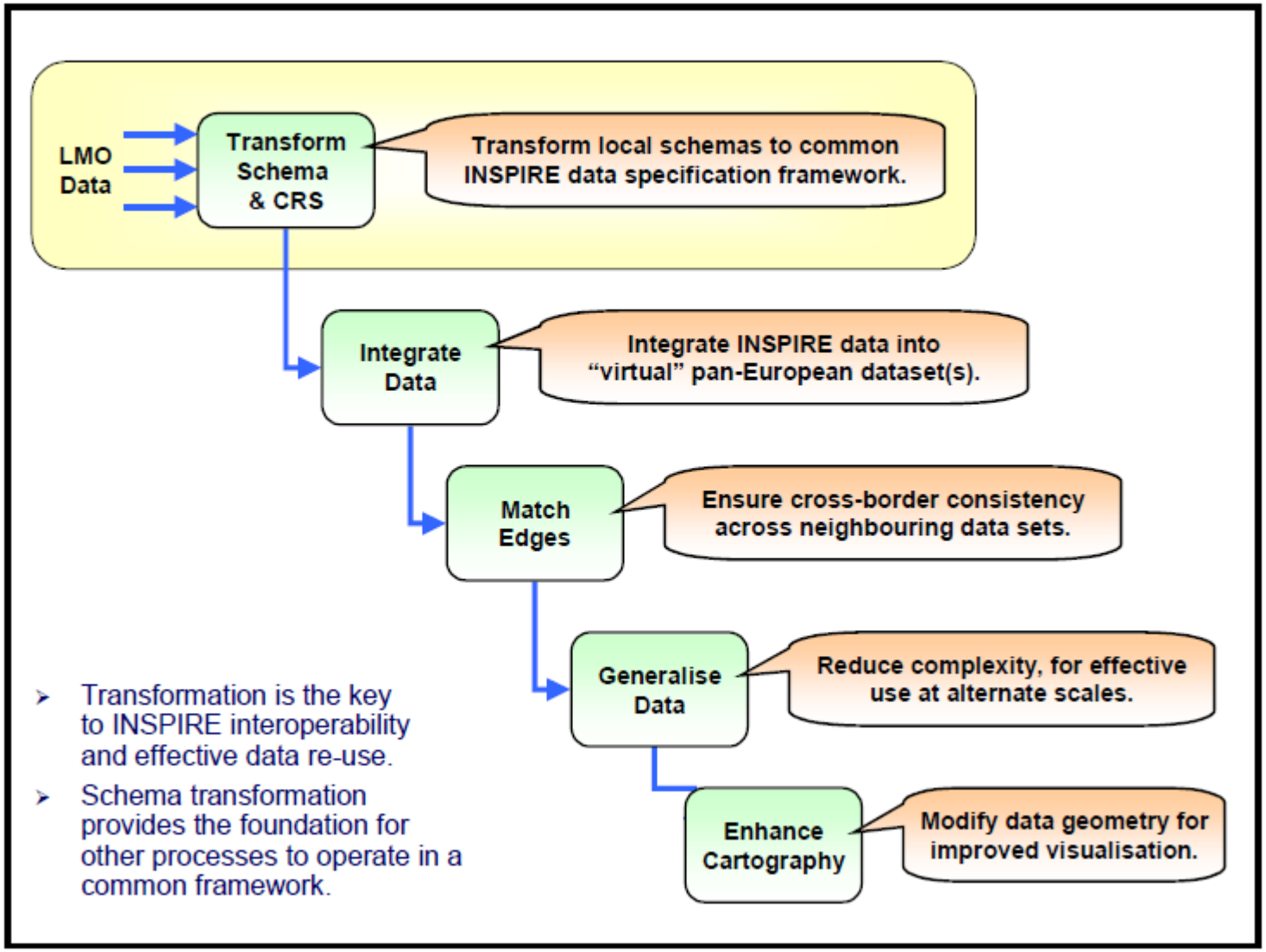
http://www.youtube.com/watch?v=AyGog52ZRRY

riferimento (1)

Many Legally Mandated Organisations (LMOs) and other data suppliers who are providing data within the INSPIRE themes will retain their own schemas for the data that they collect, manage and publish. For INSPIRE compliance however, they must also ensure that there is a Transformation Service available to transform the data to the appropriate INSPIRE schema. This service may be provided by the supplier; by the national government concerned; or by a third party. It may be an offline service with the INSPIRE compliant datasets then published on the web for the INSPIRE GeoPortal (and others) to access; or it may be available as a web service - preferably capable of being invoked automatically at the time that data is requested. This paper describes the State of the Art Analysis and the subsequent development of Technical Guidance for INSPIRE Transformation Network Services, as carried out by a consortium of RSW Geomatics, 1Spatial, and Rob Walker Consultancy for the EC Joint Research Centre.

(1) http://ijsdir.jrc.ec.europa.eu/index.php/ijsdir/article/download/212/285

Figure 2: Illustration of a Possible Transformation Process Sequence



4.4. Bulk Transformation & Caching

There is alternative approach to transformation services not mentioned in the IR. Transformation of source data to the INSPIRE schema is pre-computed and the transformed data resulting from this is then cached. The download service and client applications communicate with this data cache in the INSPIRE model and do not need to know about the existence of data in any other format. However, the bulk transformation service is considered as an online service in which the first requester will incur the penalty of the additional time required to wait for the results of the transformation, and subsequent requesters will received the pre-transformed dataset.

Strengths of this approach are in performance, scalability, flexibility and extensibility. Weaknesses could be lack of currency for volatile data and the change in architecture required to encompass an additional dataset.

Tool (1)

- Tuesday 08 October morning

Time	Topic	Potential presenter
9h – 9 h 10	Welcome and introduction	Dominique Laurent (IGN France)
9 h 10 – 9h 35	Study about schema transformation service	Marie-Lise Vautier (IGN France)
9h 35 – 10 h	Rules and methods for schema transformation by Humboldt project	Thorsten Reitz (ESRI Switzerland)
10 h – 10 h 25	From production data base to INSPIRE data: potential methods	Kartverket- Norway (speaker to be confirmed)
10 h 25 – 10 h 45	Pause	
10 h45 – 11 h 30	The ESDIN experience : use of DBMS and WFS The GeoServer APP schema Catalogue and mapping generators by Politecnico di Milano	Lassi Lehto (NLS – Finland) to be confirmed) Marie Lambois (IGN France) Dominique Laurent (IGN France)
11h 30 – 12 h 10	Degree and its specific developments for INSPIRE	Jens Fitzke (Latlon - Germany)

(1) http://www.eurogeographics.org/sites/default/files/Schema%20Transformation%20Workshop-draft%20agenda-v2.pdf

Time	Topic	Potential presenter
13h 20 – 13 h 50	XSLT and its use by Kadaster for ESDIN	Just van den Broecke (Kadaster)
13 h 50 – 14 h 20	Stetl for INSPIRE transformation	Just van den Broecke (Kadaster)
14 h 20 – 14 h 50	Talend for INSPIRE Theme Land Use	Jean-Loup Delaveau (CERTU – France)
14 h 50 – 15 h 20	Comparison Talend - GeoKettle	Edith Vautard (IGN F)
15 h 20 – 15 h 40	Pause	
15 h 40 – 16 h 10	Humboldt Alignment Editor (HALE) and Conceptual Schema Transformer (CST)	Thorsten Reitz (ESRI Switzerland)
16 h 10 – 16 h 40	GeoConverter	Maria Cabello (Tracasa)
16 h 40 – 17 h 10	ExoMS for INSPIRE themes Species Distribution – Habitat and Biotopes	François Tertre (BRGM – France)
17 h 10 – 17 h 40	model driven Web Feature Service (mdWFS)	Tatjana Kutzner (Technical University München)
17 h 40 – 18h 30	Discussion : main drivers to choose transformation tool(s) and method(s)	

Time	Topic	Potential presenter
9 h 00 – 9h 40	Feature Manipulation Engine (FME) and its use for ESDIN	Veremes (speaker to be confirmed) BKG (speaker to be confirmed)
9 h 40 – 10 h 20	Arc GIS for INSPIRE Example of use	Paul Hardy (ESRI) Speaker to be found
10h 20 – 10 h 50	Go Publisher	Richard Rombouts (Snowflakes)
10 h 50 – 11 h 10	Pause	
11 h 10 – 11h 50	GeoMedia Fusion and its use by Gugik	Anna Zamolska (Intergraph): speaker to be confirmed Gugik : speaker to be confirmed
11 h 50 – 12 h 20	Use of AltovaMapForce by Lantmateriät	Helen Eriksson (Lantmateriät)
12 h 20 – 12 h 50	Schema transformation by 1Spatial	Robert Chell (1Spatial)

Table 2 Strengths and Weaknesses of Schema Description Languages

Criteria	UML/XMI	XSD/GML	RDF/OWL
Expressiveness	Strong	Acceptable	Acceptable
Web Compatibility	Strong	Strong	Strong
Tool Support	Strong	Weak	Acceptable
Technology Independence	Strong	Weak	Strong
Intuitiveness	Strong	Weak	Weak

Schema description languages and model mapping languages need to be evaluated together. UML/XMI is a strong candidate, but proved to be problematic in practice, because there is no consistent format for export of XMI documents from UML models. XSD/GML is generally considered a logical format, but its physical structure is verbose and required extra effort when developing mappings against it. RDF/OWL is an ontology language designed for the Semantic Web.

Subsequently, in the Technical Guidance, XSD/GML is preferred. The rationale for this was based on the key requirement for a schema description language to be interoperable with the mapping interchange format (which, as discussed in section 3.2 is the Rules Interchange Format). As the schema description language is an interchange format, it is important that it is both sufficient for the service and practically usable by service clients, typically by conversion from an existing schema description. XML Schema is most closely aligned to the needs of the Schema Transformation Network Service, since it is designed for the strict definition of concrete datatypes. It has good support for common data modelling

Table 4: Comparison of Model Mapping languages for Implementation Criteria

Implementation Criteria	RIF	QVT	XSLT
Technology independence	Strong	Strong	Strong
Practical feasibility	Acceptable	Strong	Weak
Intuitiveness	Acceptable	Strong	Weak
Manageability	Strong	Acceptable	Acceptable
Web compatibility	Strong	Strong	Strong
Logical portability	Strong	Acceptable	Weak
Custom Extensions	Strong	Strong	Acceptable

http://www.w3.org/TR/rif-overview/

Table 5: Vendors/distributors of transformation tools

Vendor / distributor	Commercial or R & D	Name of tool	Tool Version
SAFE Software	Comm.	FME Server	2010
Snowflake Software	Comm.	GO Publisher	1.4
interactive instruments GmbH	Comm.	XtraServer	3.2
1Spatial	Comm.	Radius Studio	2.1.0.15
lat/lon GmbH	R&D	Deegree WPS	3.0
Talend	Comm.	Talend Integration Suite	*Not specified*
Humboldt	R & D	Humboldt Alignment Editor/Conceptual Schema Translation Service	HALE 2.0.0-M1, CST 1.0.0-RC1
AuScope	R & D	AuScope Grid (uses GeoServer)**	*Not specified*

To deploy the components needed to demonstrate the prototype Transformation Network Service a test environment was configured to include pre-existing software tools from four separate organisations and open source communities:

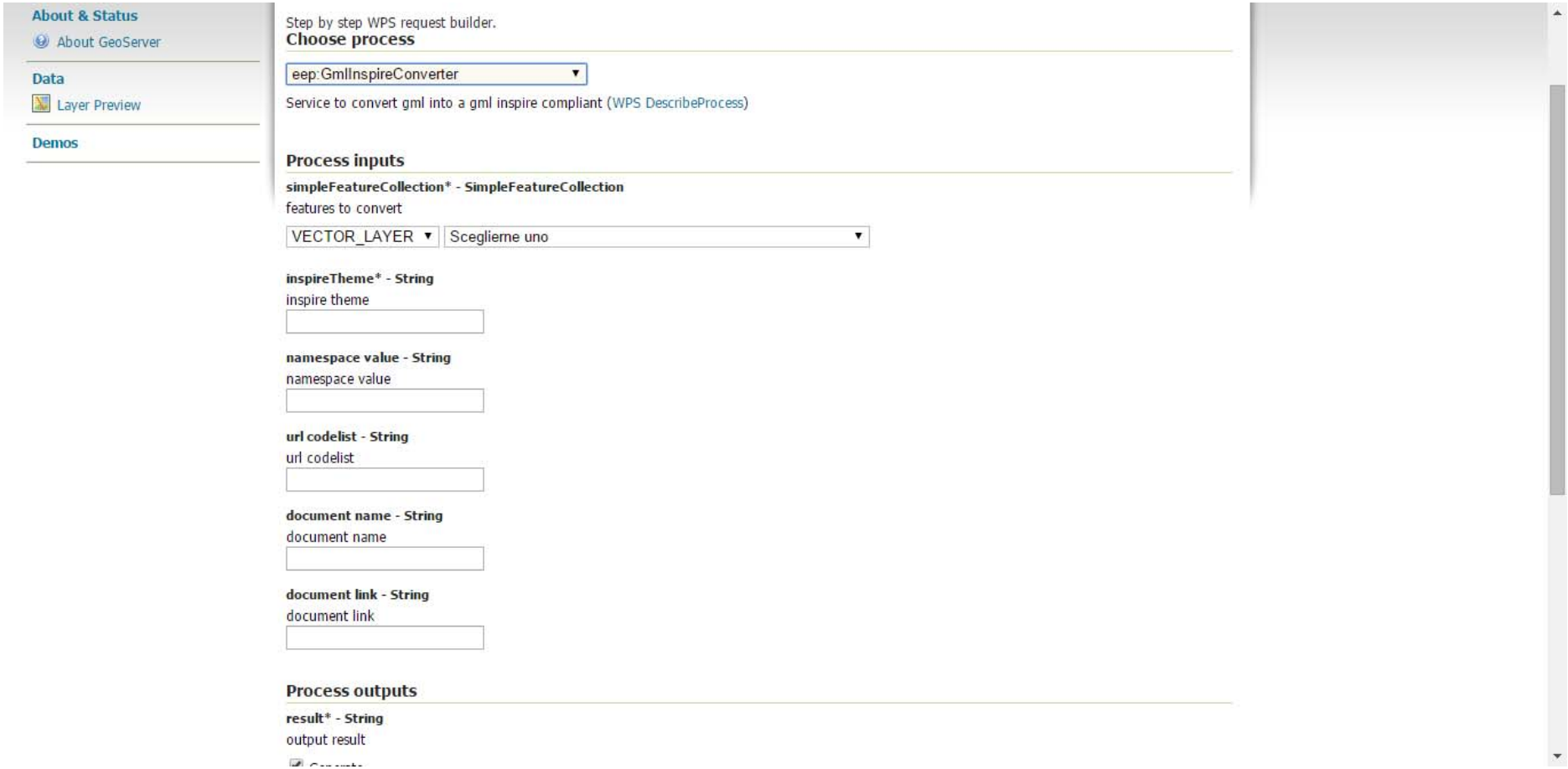
- GeoServer[21], an open source Web Feature Service (WFS), for publishing source data/schema;
- Humboldt Alignment Editor (HALE)[22], an open source tool for defining schema mappings;
- Radius Studio™[23], a commercial geospatial rules engine for performing the transformations;
- TatukGIS Viewer[24], a free to use application for visualising transformed data.

www.eenvplus.eu

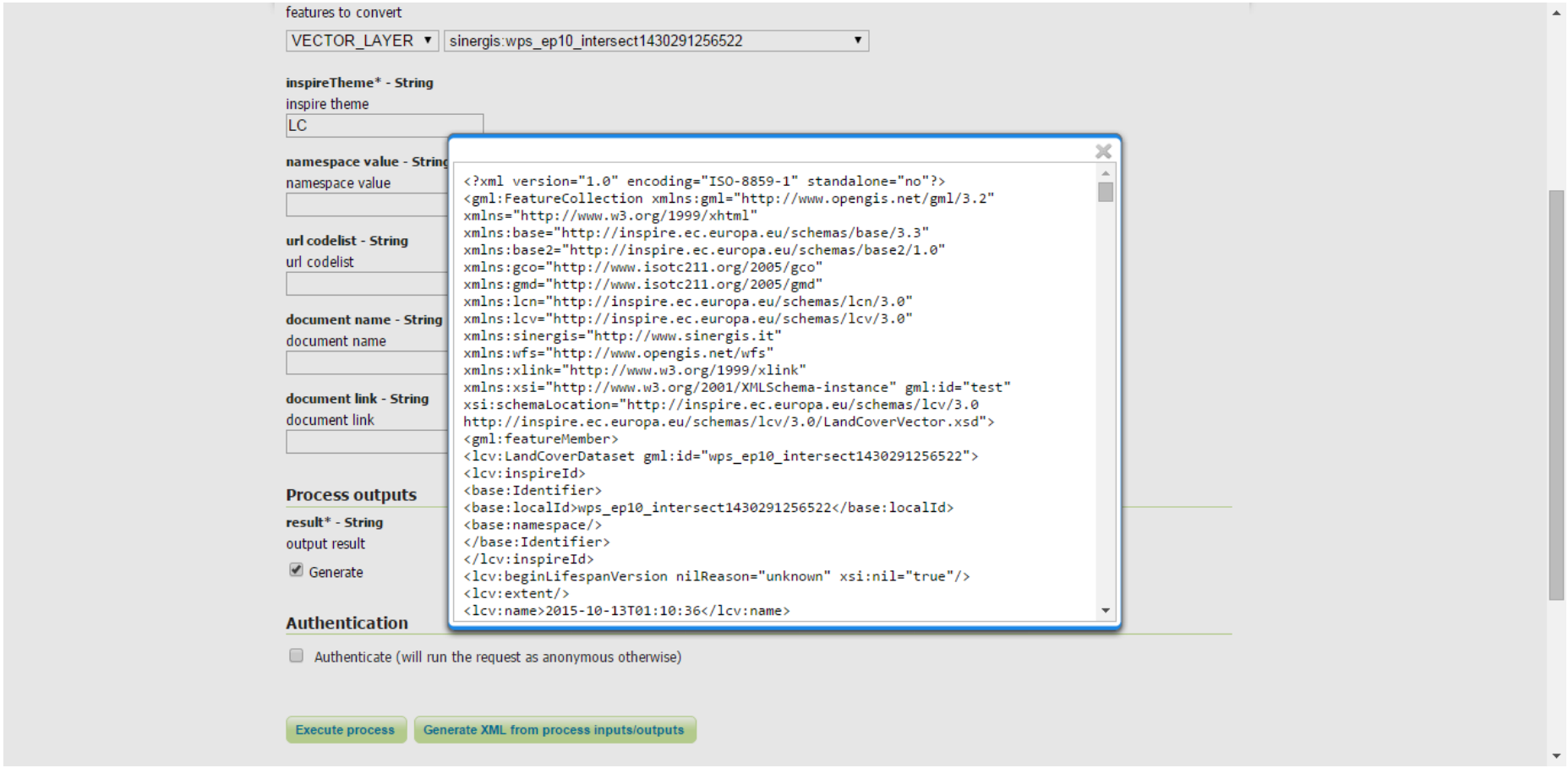
GML simple to GML INSPIRE

- Transformation into INSPIRE GML
  - XSLT trasformation of GML dataset produced by the WPS implemented by the Portuguese Pilot (Urban and Rural Growth Identification) into INSPIRE Land Cover GML, via a second WPS
  - Useful to separate the "processing" and the "publishing" of results:
    - "Urban and Rural Growth Identification" WPS provides simple GML output dataset resulting from the process
    - this output dataset may be temporary; if the **user** opts for publishing …
    - … the dataset has to be "INSPIREzed" through a second WPS operation
  - Possible ingestion of the final INSPIRE Land Cover GML into PostGIS via deegree, for having it available through INSPIRE compliant WMS and WFS

Web Processing Service



Web Processing Service



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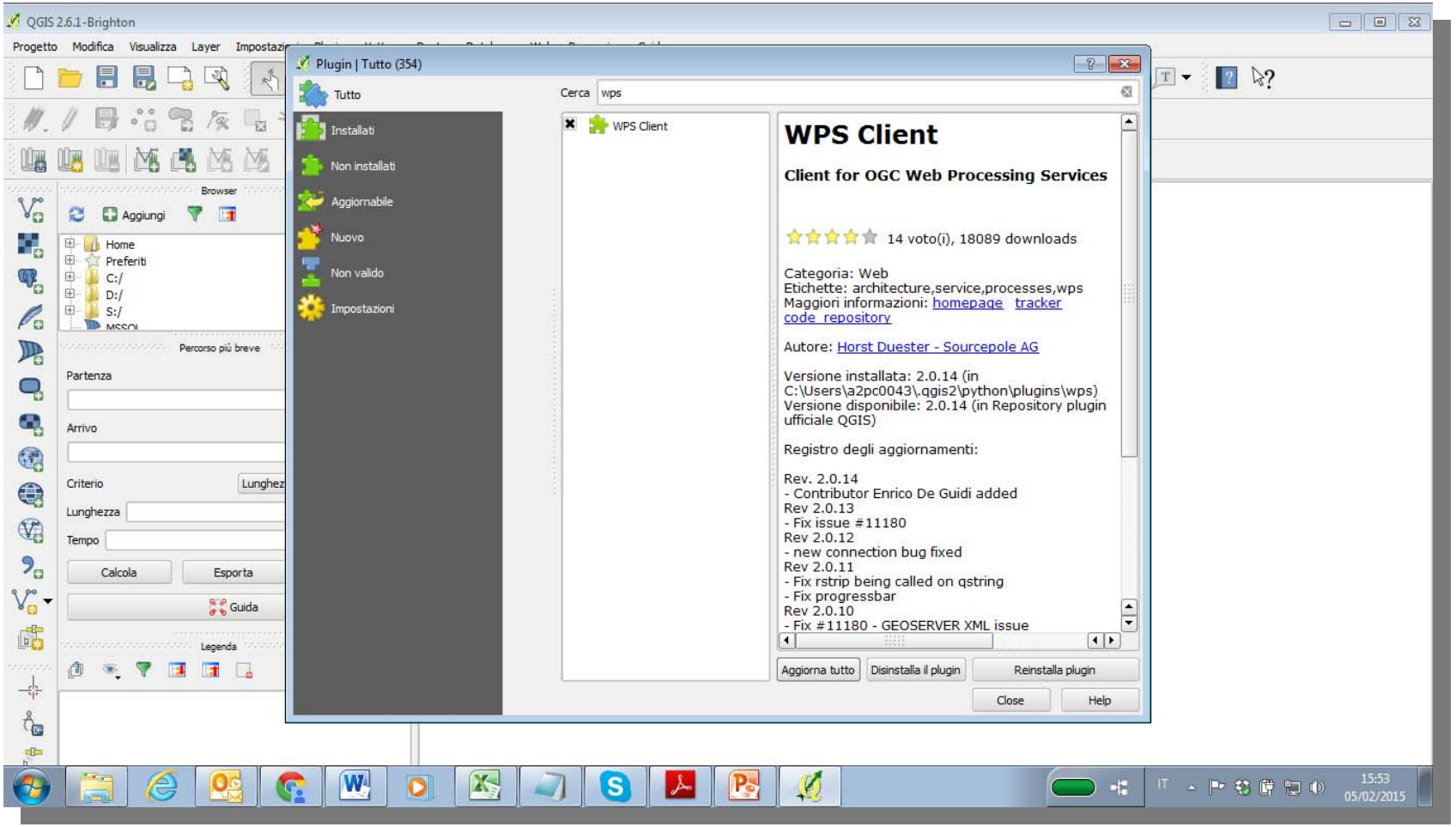
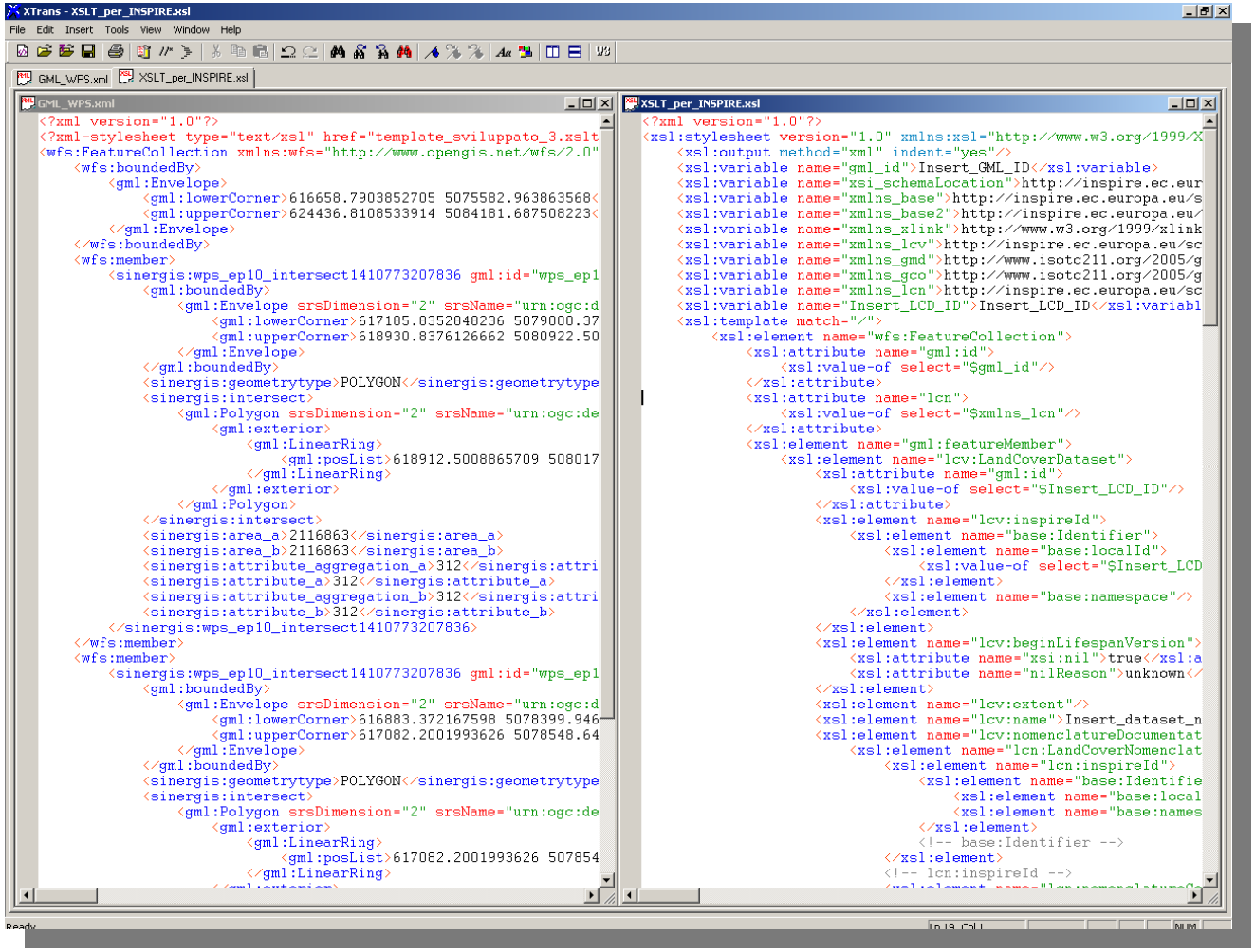


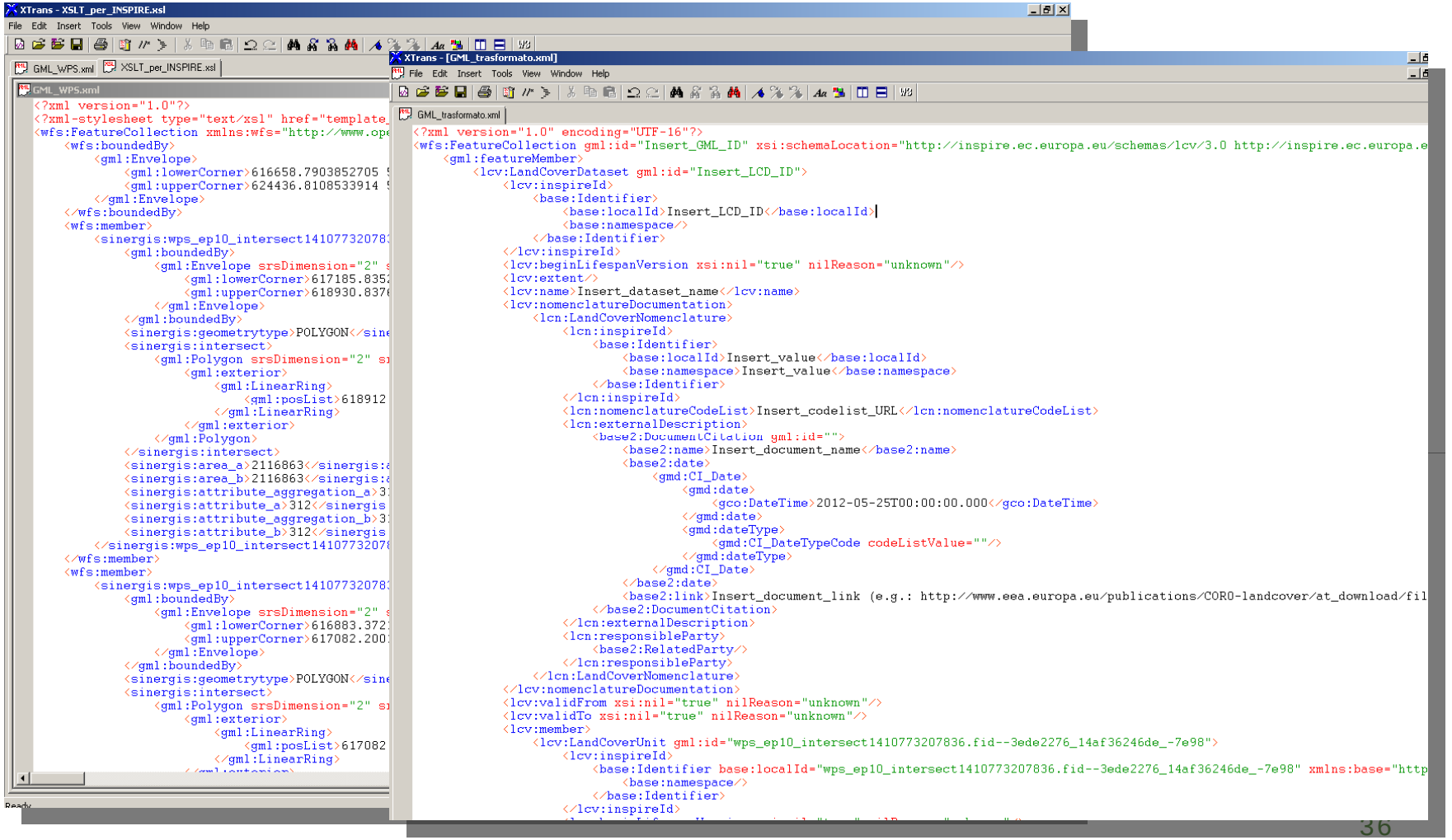
Web Processing Service

XSLT and GML INSPIRE (LC)



Web Processing Service

XSLT and GML INSPIRE (LC)



Grazie

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