

Infrastructure for Spatial Information in the European Community

INSPIRE Geoportal a platform for INSPIRE services

EC INSPIRE GEOPORTAL TEAM

Gianluca Luraschi - gianluca.luraschi@jrc.ec.europa.eu

European Commission

Joint Research Centre

Institute for Environment and Sustainability

Spatial Data Infrastructures Unit



INSPIRE PROTOTYPE Geoportal

Barcelona FOSS4G, 06-10 September 2010



Welcome to INSPIRE geoportal - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Welcome to INSPIRE geoportal

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European Commission INSPIRE Geoportal

EUROPEAN COMMISSION > INSPIRE GEOPORTAL >

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[Discovery](#)

[Viewer](#)

[Metadata Editor](#)

[Metadata Validator](#)

Legislation

[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 \(INSPIRE\)](#)

[Regulation on INSPIRE Network Services](#)

[INSPIRE Metadata Regulation](#)

INSPIRE Website

INSPIRE Registry

Welcome to INSPIRE geoportal

The INSPIRE geoportal provide the means to search for spatial data sets and spatial data services, and subject to access restrictions, view and download spatial data sets from the EU Member States within the framework of the [Infrastructure for Spatial Information in the European Community \(INSPIRE\) Directive](#). INSPIRE aims at making available relevant, harmonised and quality geographic information to support formulation, implementation, monitoring and evaluation of policies and activities which have a direct or indirect impact on the environment.

What does it include

This version is a prototype INSPIRE geoportal and allows for [discovery](#) and [viewing](#) of spatial data sets and services. It's aim is to identify issues related to its implementation and accessing distributed INSPIRE services, to help towards the development of the operational geoportal.

The prototype INSPIRE geoportal currently accesses a limited number of discovery and view services and therefore only a few metadata for spatial data sets and services may be found and viewed. These will increase as more services become available from the EU Member States.

To ensure that the INSPIRE geoportal has a full functional access to the Discovery and View services testing is done in close cooperation with the Member States.

This allows performing any necessary modifications or adjustments to improve interoperability and the overall architecture performance and in general facilitate the way towards the full operating capability.

We depend on your feedback to help us make the geoportal better. If you have questions or comments about the site, please [contact us](#).

What's inside

Discovery

Search, discover and access geographic information provided by European governmental, commercial, and non-commercial organizations.



[more ...](#)

Viewer

Search, view, edit online maps, and create your personalised map using distributed data.



[more ...](#)

Metadata Editor

Create metadata according to the INSPIRE implementing rules.



[more ...](#)

Jan 2010

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

NEWS | **EVENTS**

- 15-Jan-10** Reminder: 1st Feb 2010: Deadline for submission of papers for [INSPIRE Conference](#)
- 07-Jan-10** Corrigendum to [INSPIRE Metadata Regulation published in the Official Journal](#)
- 14-Dec-09** Amendment of the [INSPIRE Network Services Regulation for Download and Transformation approved](#)
- 14-Dec-09** [INSPIRE Implementing Rules on interoperability of spatial data sets and services have been approved by the INSPIRE Committee](#)
- 07-Dec-09** [INSPIRE Conference 2010: Call for papers](#)
- 03-Dec-09** [INSPIRE Forum:](#)

<http://www.inspire-geoportal.eu>



INSPIRE Geoportal – Requirements

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- Required by the INSPIRE Directive
 - Provide access to the Member States INSPIRE services
- Aims to provide an operational platform to satisfy the requirements of the directive, regulation, IR and TG
- Development and operation under EC responsibility
- INSPIRE network services: discovery, view, download, transformation, invoke





INSPIRE Geoportal - Scope

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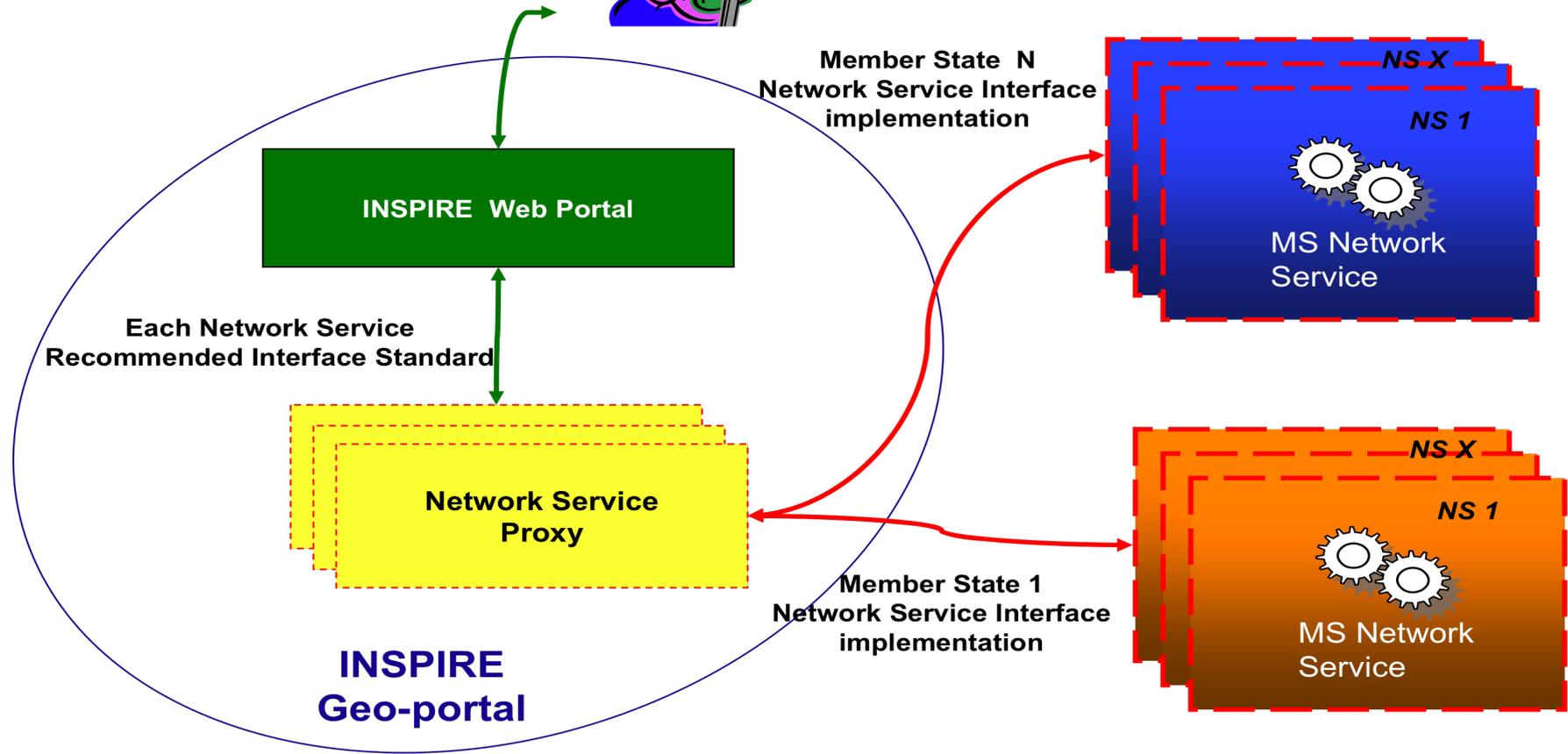
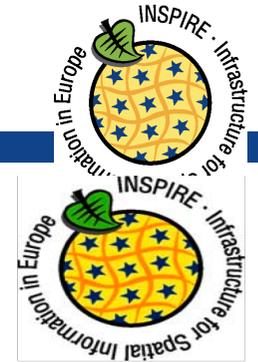


- To promote an interoperability assessment through use of INSPIRE Network Services
- establish an architecture for the INSPIRE geoportal in terms of functional requirements of the components and their interactions and the experience and lessons learned
 - Drive the specifications for the operational geoportal
- evaluate fitness for purpose of standards & specifications;
- provide feedback to standardisation organisations;
- assess the performance of different search scenarios;



Geoportal architecture

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↔ Dependency with MS implementation
↔ No Dependency with MS implementation



Geoportal Prototype Development

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- Current focus on
 - INSPIRE Discovery & View services, Metadata
 - Tools (Discovery, View, Metadata Editor, Metadata Validation, ...)
- Technical aspects addressed:
 - Access to distributed INSPIRE Network Services
 - Heterogeneities (e.g. interface, information encoding)
 - Quality of service (performance, capacity, availability)
- Prototype geoportal available (Version 2.0)
- Discovery & View web clients based on open source S/W and internal development (OSOR web site)



Geoportal Discovery

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- Search criteria
 - Minimum INSPIRE search criteria
- Federation Strategy (real time vs cache)
 - Metadata updating policies
 - Metadata validation
 - QoS (performance, capacity, availability)
- INSPIRE information model
 - INSPIRE metadata Regulation and Implementing Rules for services, dataset, series
 - Network Service Regulation and Implementing Rules for Discovery and View

The screenshot shows the INSPIRE Geoportal Discovery interface. The top navigation bar includes the European Commission logo and the text 'INSPIRE Geoportal'. Below this, there are search filters for 'Resource type' (all, dataset, service), 'Topic category' (all, boundaries, economy), 'From' (1999-01-01), 'To' (2008-01-06), and 'Sort by' (Best matched). A search button and 'More Search Criteria' link are also present. The main area features a map of Central Europe with a red bounding box around Prague and a blue bounding box around Bratislava. On the left, there is a sidebar with 'HOME', 'Discovery', 'Viewer', and 'Metadata Editor' links, along with a 'Legislation' section containing various technical reports. On the right, a 'Results' list shows search results for 'Image2000 Product 1 (at11) Multispectral' and 'Image2000 Product 1 (at10) Panchromatic'. Below the results, there are two tables: 'Resource Type Statistic' and 'Topic Category Statistic'. The 'Resource Type Statistic' table shows 27 total records found, with 25 datasets and 2 services. The 'Topic Category Statistic' table shows 28 total records found.

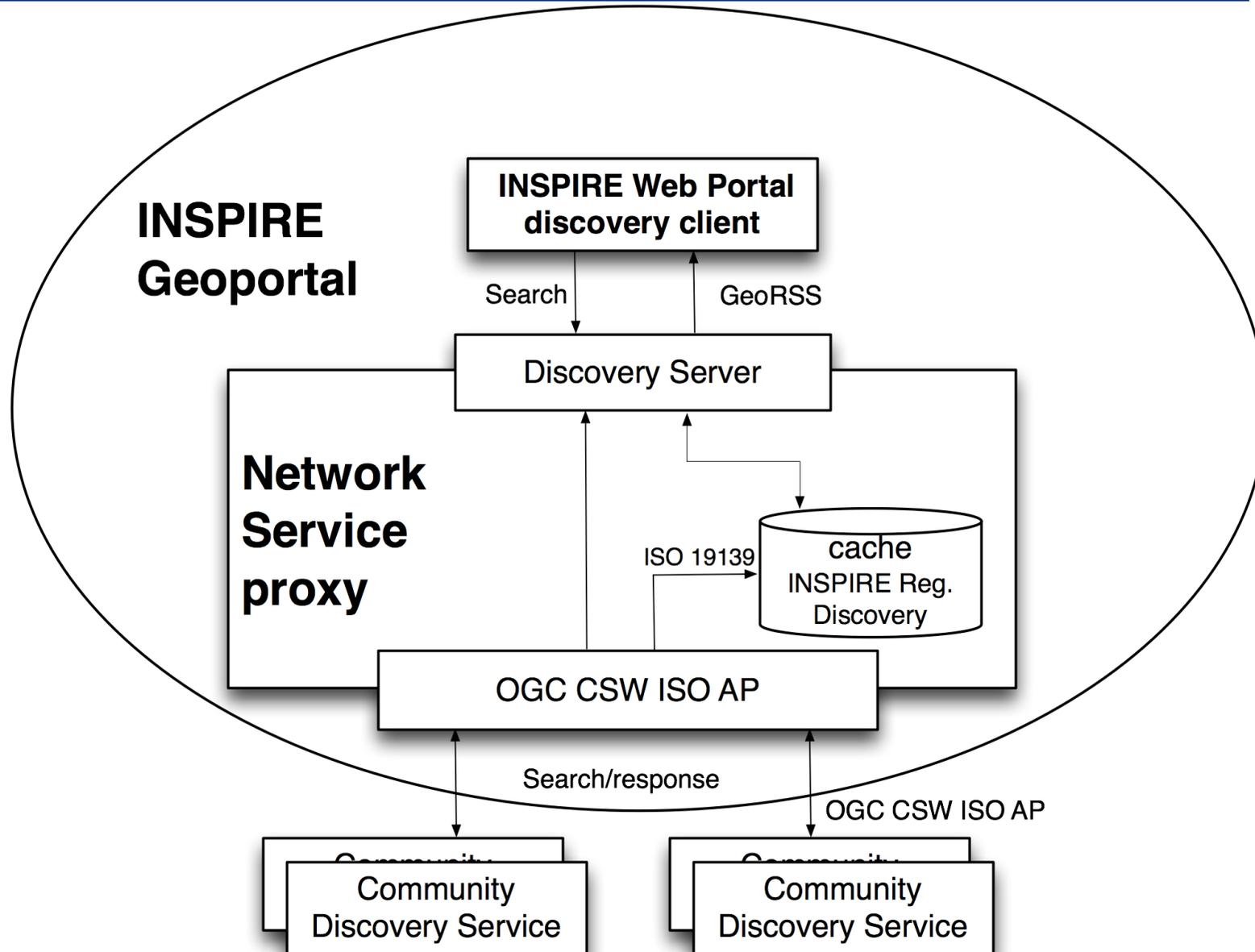
Resource Type	Total records found
dataset	25
service	2

Topic Category	Total records found
	28



Geoportal Discovery - standards used

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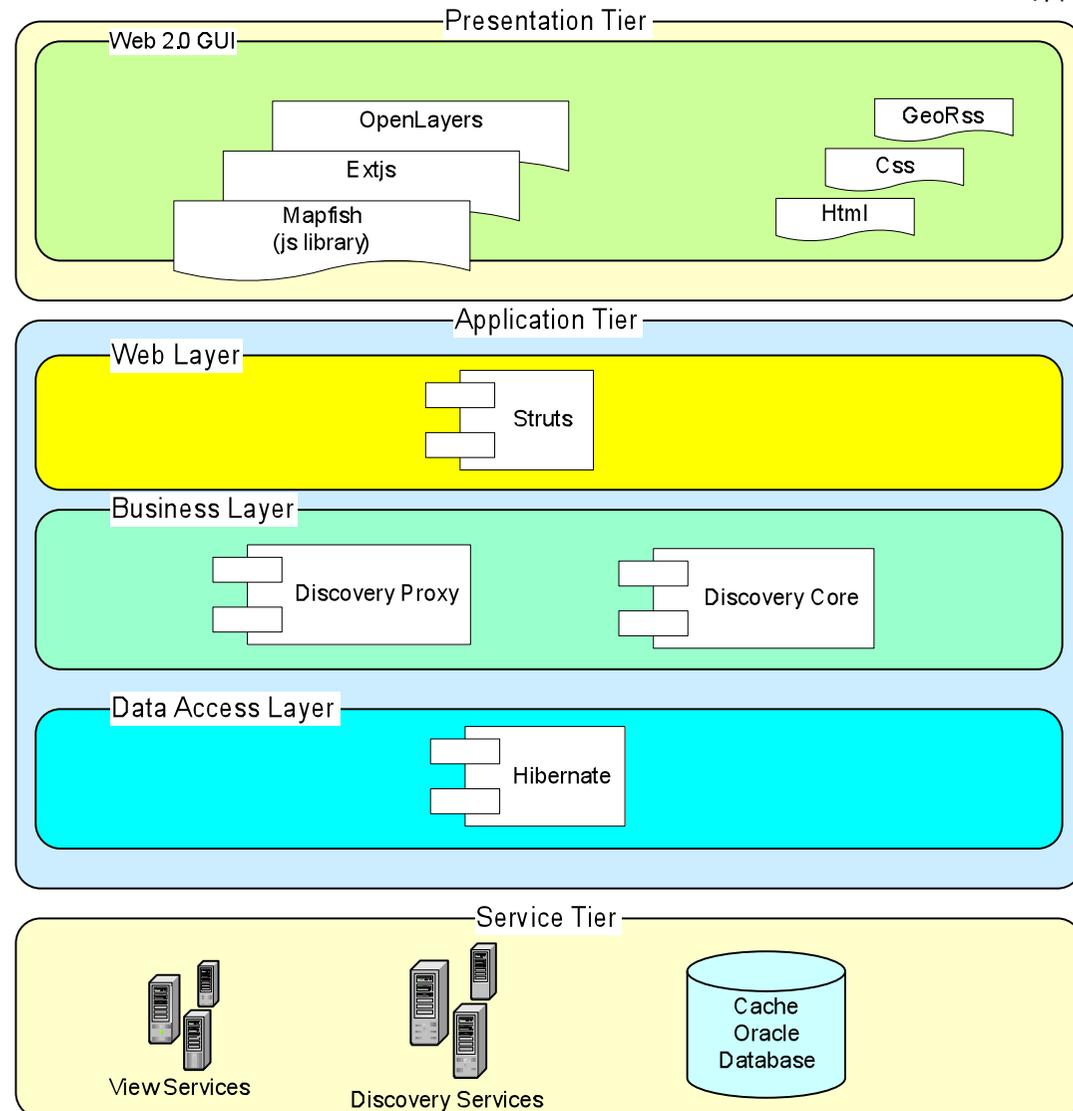


Discovery - Architecture

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- Presentation
 - Presentation formats
 - Javascript frameworks
- Web layer
 - MVC design pattern
 - multiple languages
- Discovery Core
 - Query metadata
 - Rank result
 - Create statistics
 - Create GeoRSS result file
- Discovery Proxy
 - Adaptor for MS discovery service
 - Federation strategy
- Data Access Layer
 - Persistent objects of database tables





View - Overview

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- The View Service Client lists and displays layers offered by View Services.
- Features a free-text search functionality for layers (multi-language search is enabled for INSPIRE themes).

- Support of ISO 19128 (OGC WMS 1.3.0) as described in the Technical Guidance to implement INSPIRE View services
- Selection of a View Service from a predefined list.
- Support of multiple coordinate reference systems (WGS84, ETRS89, ETRS-LAEA, ETRS-LCC).

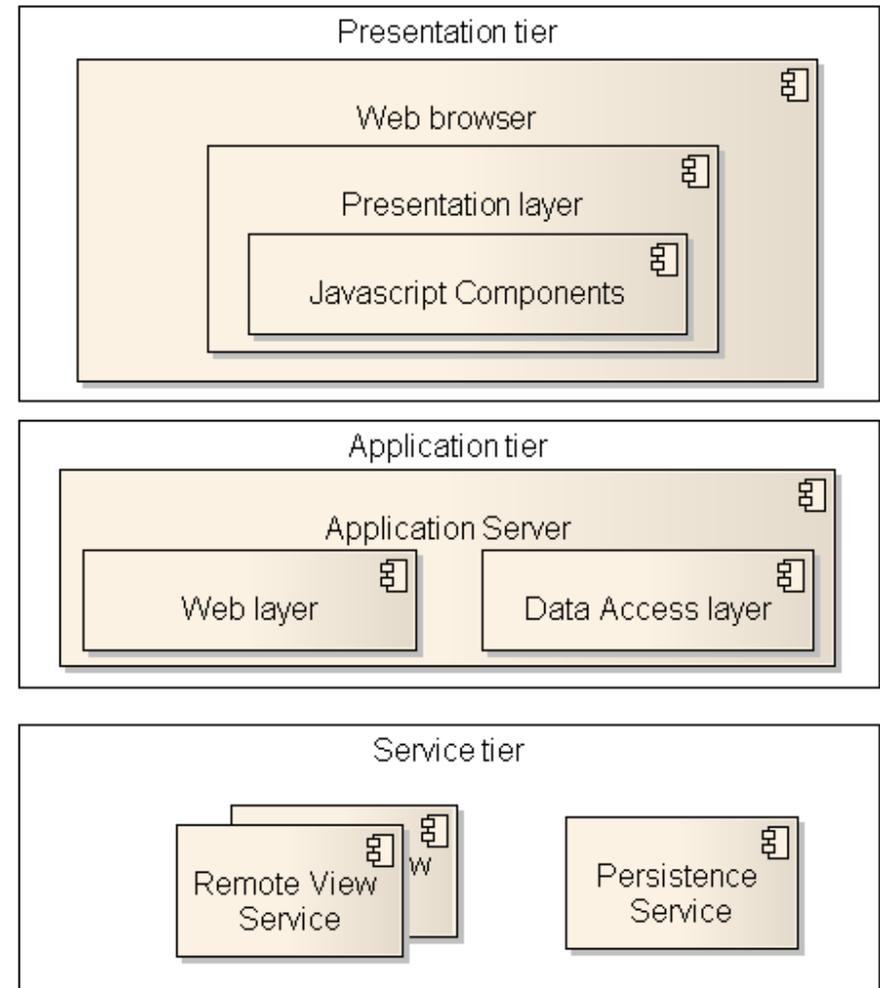


View Client - Architecture

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- The presentation layer is designed to execute inside the user's web browser
- The web layer deals with the communication with:
 - the user's web browser
 - all services except the persistence service
- The data access layer deals with the communication with the persistence service



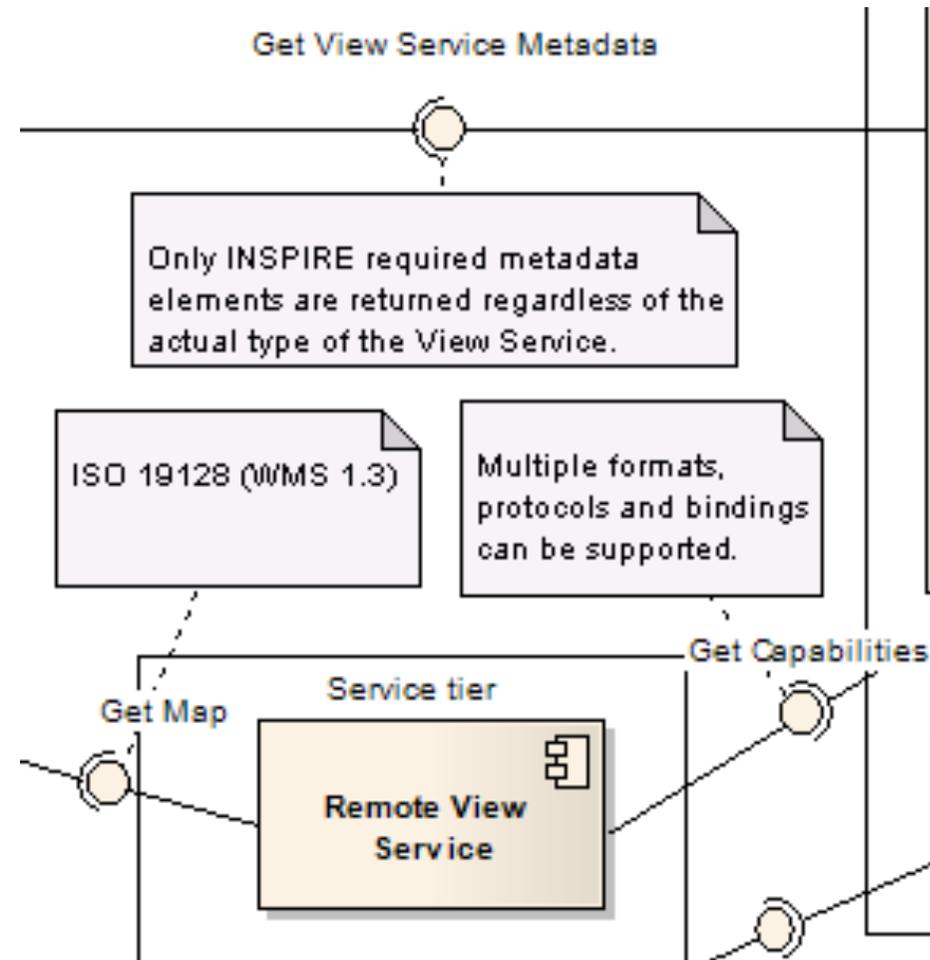


View Service Client – Application Tier

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- View Service capabilities is collected by the Application tier
- ISO 19128 (OGC WMS 1.3.0) documents are expected but the system also works with versions 1.1.0 and 1.1.1
- capabilities documents are parsed and cached to extract information relevant for processing the user request (layer, unique resource id, ...).





Discovery – Implementation

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Presentation tier	Application Tier	Service Tier
<ul style="list-style-type: none">▪Ext JS JavaScript library 2.0.1▪OpenLayers 2.5▪MapFish 1.0	<p>Web layer</p> <ul style="list-style-type: none">▪Struts 1.3.8▪J2EE Servlets▪Rome-0.9, jdom 1.0▪ geoTools <p>Data access layer</p> <ul style="list-style-type: none">▪Hibernate 3.2.5▪Java persistent API	<p>Discovery Service: OGC 19139 ISO AP.</p> <p>View Services: ISO 19128 (WMS 1.3.0), WMS 1.1.1</p> <p>Persistence Service</p> <ul style="list-style-type: none">▪Oracle RDBMS



Metadata Validator – Web Client

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1. xml well-formed
2. namespace correctness
3. ISO 19139 validation
4. ISO 19115 validation
5. INSPIRE compliancy (schematron)

Validate About

Upload your metadata record file here

Invalid Elements Valid Elements

Number of incorrect elements found: 2

- (2.4) For datasets and series at least one keyword of GEMET thesaurus shall be documented.
- (2.11.3) Metadata language is missing or has a wrong value

Validate About

Upload your metadata record file here

Invalid Elements Valid Elements

Number of correct elements found: 28

Document namespace is <http://www.isotc211.org/2005/gmd>

- (2.2.3) Resource type found: dataset
- (2.2.5) Unique resource identifier (code) found: image2000_1_UK8_multi
- (2.2.5) Unique resource identifier (codeSpace) found: <http://ies.jrc.cec.eu.int/>
- (2.2.2) Resource abstract found: IMAGE2000 product 1 individual orthorectified scenes. IMAGE2000 was and provides a consistent European coverage of individual orthorectified scenes in national map projecti



Metadata Validator – Web Service



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- Web Service
- End point
<http://www.inspire-geoportal.eu/INSPIREValidatorService/resources/validation/inspire>
- Supported method: POST
- Supported response formats: XML, HTML
- Request parameter: dataFile
- Implementation
 - Java
 - Jersey

POST validate.do 200 OK

Headers	Post	Response	HTML
Response Headers			
Server	Apache-Coyote/1.1		
Content-Type	text/html; charset=UTF-8		
Content-Length	5072		
Date	Tue, 12 Jan 2010 08:03:33		
Request Headers			
Host	localhost:8080		
User-Agent	Mozilla/5.0 (Windows; U; 3.5.30729)		
Accept	text/html, application/xhtml+xml, */q=0.5		
Accept-Language	en-us,en;q=0.5		
Accept-Encoding	gzip, deflate		
Accept-Charset	ISO-8859-1,utf-8;q=0.7,*;q=0.3		
Keep-Alive	300		
Connection	keep-alive		
Referer	http://localhost:8080/INSPIREValidatorService/resources/validation/inspire		
Cookie	JSESSIONID=49EC5AB78A40BE		

```
Content-Type: multipart/form-data; boundary=-----
-----3106019269010
Content-Length: 2077

-----3106019269010
Content-Disposition: form-data; name="dataFile";
filename="in_metadata_en_1.xml"
Content-Type: text/xml
<?xml version="1.0" encoding="UTF-8"?>
<csw:GetRecordByIdResponse
xmlns:csw="http://www.opengis.net/cat/csw/2.0.2">
  <csw:Record
xmlns:geonet="http://www.fao.org/geonetwork">
```



Validator – Implementation

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Client	Server
<ul style="list-style-type: none">▪Java 1.6▪Extjs 2.3.0▪Java 1.6▪Struts 1.3.8▪Apache Commons FileUpload 1.2.1▪Apache http client 4.0.1	<ul style="list-style-type: none">▪Java 1.6▪Jersey 1.0

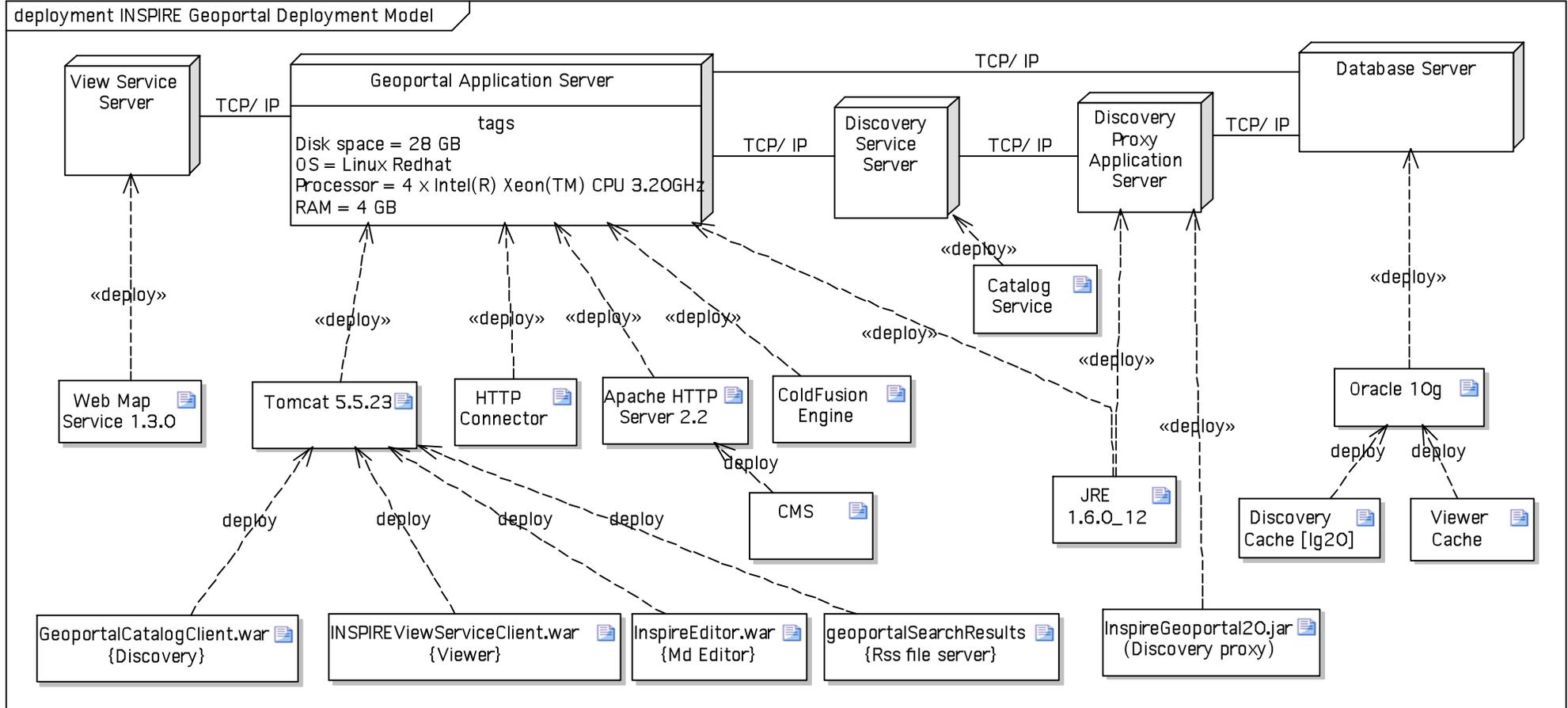


INSPIRE Geoportal technologies overview



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deployment INSPIRE Geoportal Deployment Model





Link INSPIRE services (use cases)

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Link Discovery and View INSPIRE services

“I’m looking for a geographic resources and I want to see a sample of this information on a map”

“I would like to see a map and get additional information about the geographic resources that it shows”



Link INSPIRE services (use case)



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I'm looking for (DISCOVERY SERVICE) a geographic resource (DATASET) and I want to see a sample of this information on a map (VIEW SERVICE + LAYER)

Results

- Image2000 Product 1 (de11) Multispectral
- Image2000 Product 1 (de1) Panchromatic
- Image2000 Product 1 (de10) Multispectral
- Image2000 Product 1 (de10) Panchromatic
- Image2000 Product 1 (de11) Multispectral
- Image2000 Product 1 (de11) Panchromatic
- Image2000 Product 1 (de12) Multispectral

Map

Layer Tree

- World Generic Map Service.wvt
- corine Land Cover

More functions

Add Layers

Find Layers

Search: land use

4. CORINE Land Cover 2006 map of Continental Portugal (CLC06_PT)
O mapa CORINE Land Cover 2006 para Portugal Continental (CLC06_PT) foi produzido pelo Grupo de Detecção Remota do Instituto Geográfico Português (IGP), no âmbito do GME Land FTSP (Global Monitoring for Environment and Security Land Fast Track Service Precursor). O GME Land FTSP é uma iniciativa da Agência Europeia do Ambiente (EEA) e da Comissão Europeia (CE). O GME Land FTSP para Portugal Continental foi financiado pela Agência Europeia do Ambiente (EEA), Instituto Geográfico Português (IGP) e Agência Portuguesa do Ambiente (APA). O CLC06_PT é um mapa de ocupação e uso do solo em formato vetorial, tem uma Unidade Mínima Cartográfica de 25ha e uma nomenclatura com 44 classes no nível de maior detalhe. Este mapa foi gerado através da integração num Sistema de Informação Geográfica de dois outros mapas produzidos no mesmo projecto: o mapa CORINE Land Cover Alterações 2000-2006 (CHAL06_PT) e a versão revista do mapa CORINE Land Cover 2000 (CLC00_PT). A exactidão geométrica do CLC06_PT é melhor que 100m e a exactidão temática global foi estimada em 90,2%, com uma precisão absoluta de 1,3% e um nível de confiança de 95%.
[Display Layer 'CORINE Land Cover 2006 map of Continental Portugal \(CLC06_PT\) - Open View Service 'Corine Land Cover'](#)

5. CORINE Land Cover Changes 2000-2006 map of Continental Portugal (CHAL06_PT)

Page 1 of 2

Results 1 - 5 of 9



Link INSPIRE services (use case)



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“I would like to see a map (VIEW SERVICE) and get additional information about the geographic resources (DATASET) that it shows (LAYER)”

36.70 W -11.44 N 67.29 E 23.79
EuroGlobalMap @EuroGeographics

Results Order by

- Image2000 Product 1 (de1) Multispectral
- Image2000 Product 1 (de1) Panchromatic
- Image2000 Product 1 (de10) Multispectral
- Image2000 Product 1 (de10) Panchromatic
- Image2000 Product 1 (de11) Multispectral
- Image2000 Product 1 (de11) Panchromatic
- Image2000 Product 1 (de12) Multispectral

Tools Map Projection WGS84 Cursor Longitude Cursor Latitude Help

Layer Tree

- World Generic Map Service wvt
- Corine Land Cover

More functions

Add Layers

Find Layers Select a Service World Generic Map Corine Land Cover

Search: land use

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[Usability: CORINE Land Cover 2006 map of Continental Portugal \(CLC06_PT\) - Open View Service 'Corine Land Cover'](#)

5. CORINE Land Cover Changes 2000-2006 map of Continental Portugal (CHA06_PT)

Page 1 of 2 Results 1 - 5 of 9



Link INSPIRE services ASSUMPTIONS

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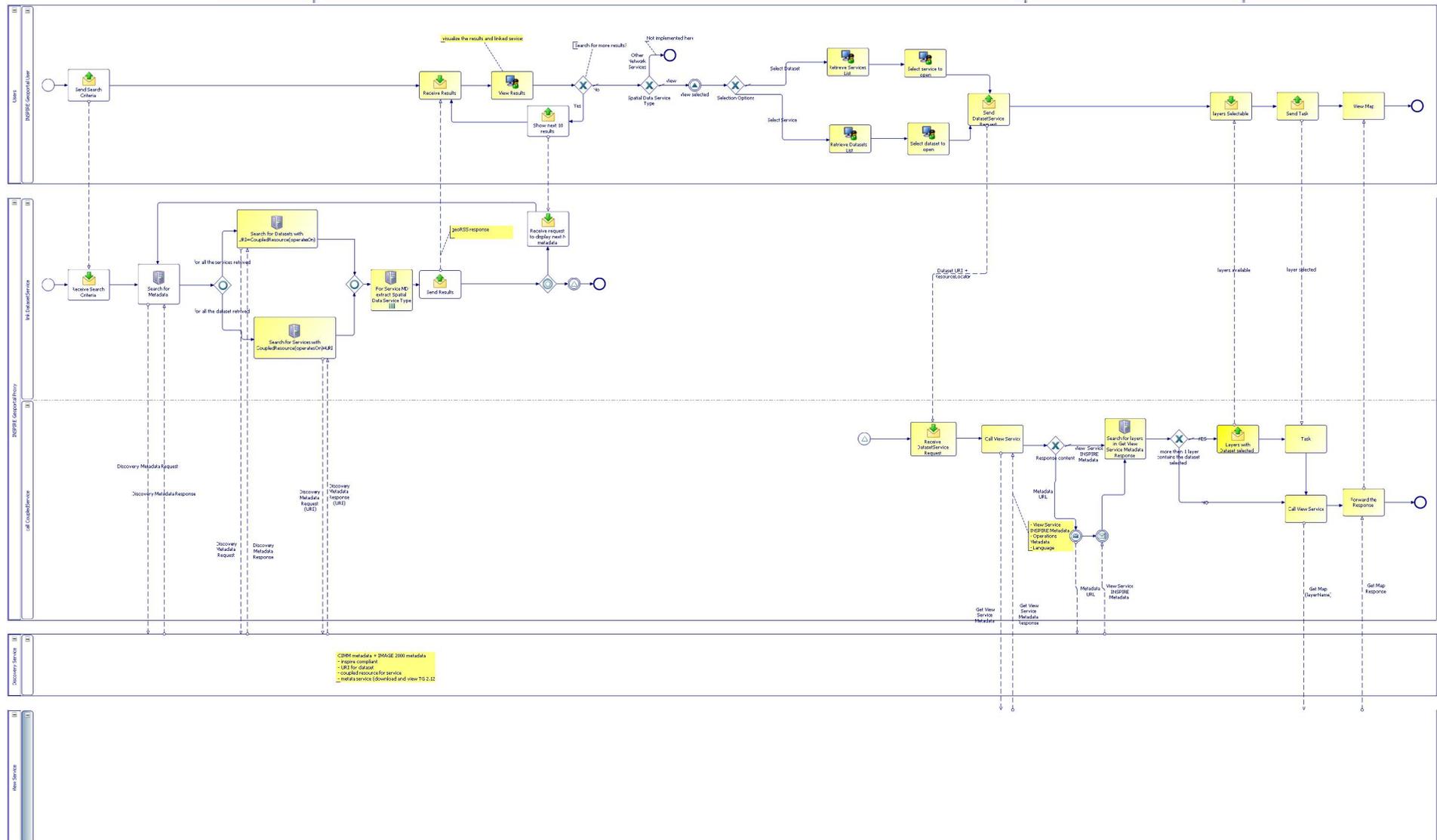


- INSPIRE Metadata of Services exists and they are discoverable by a INSPIRE Discovery Service
- The service are INSPIRE network service compliant



Link INSPIRE services (workflow)

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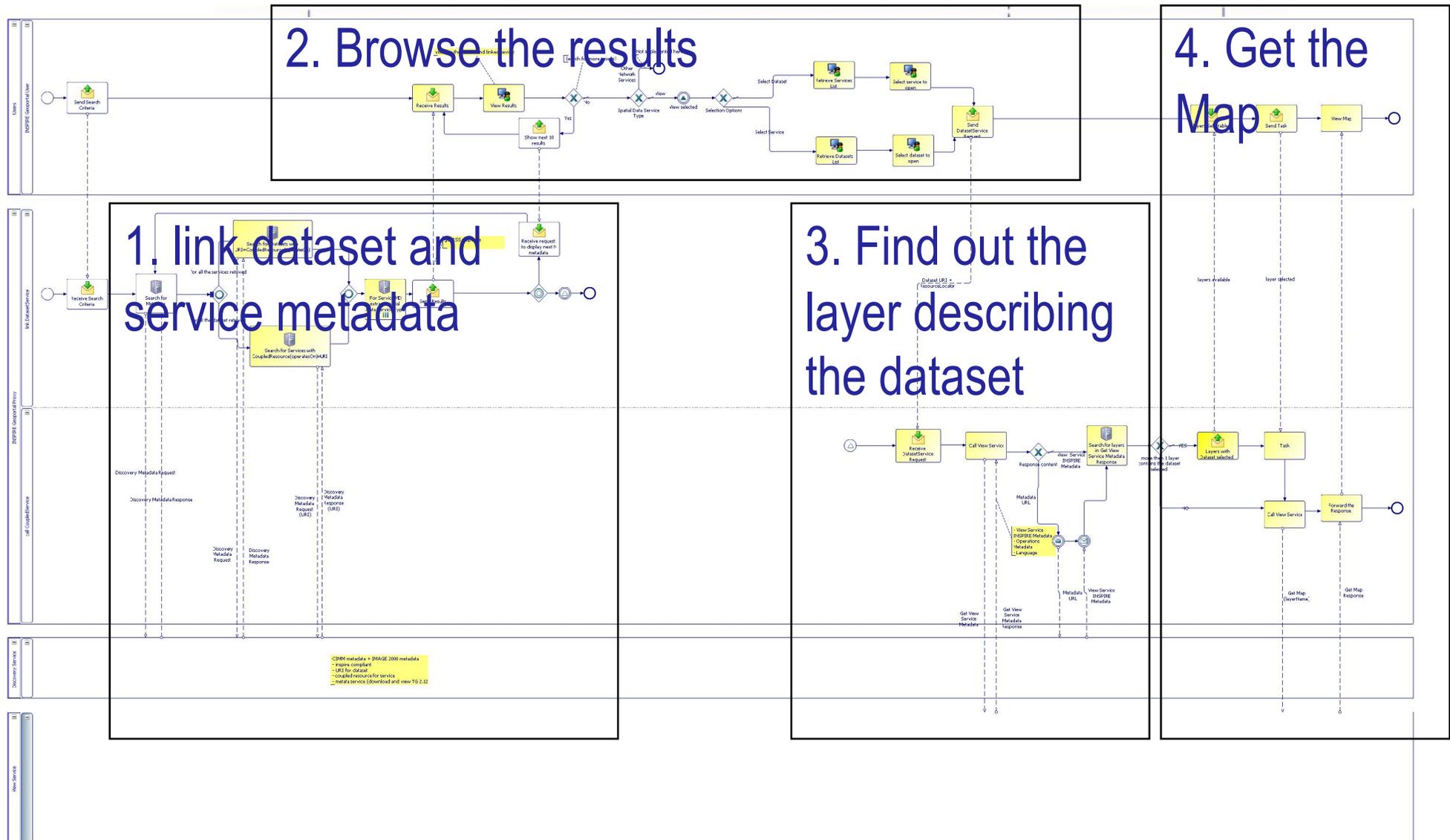




Link INSPIRE services (steps)



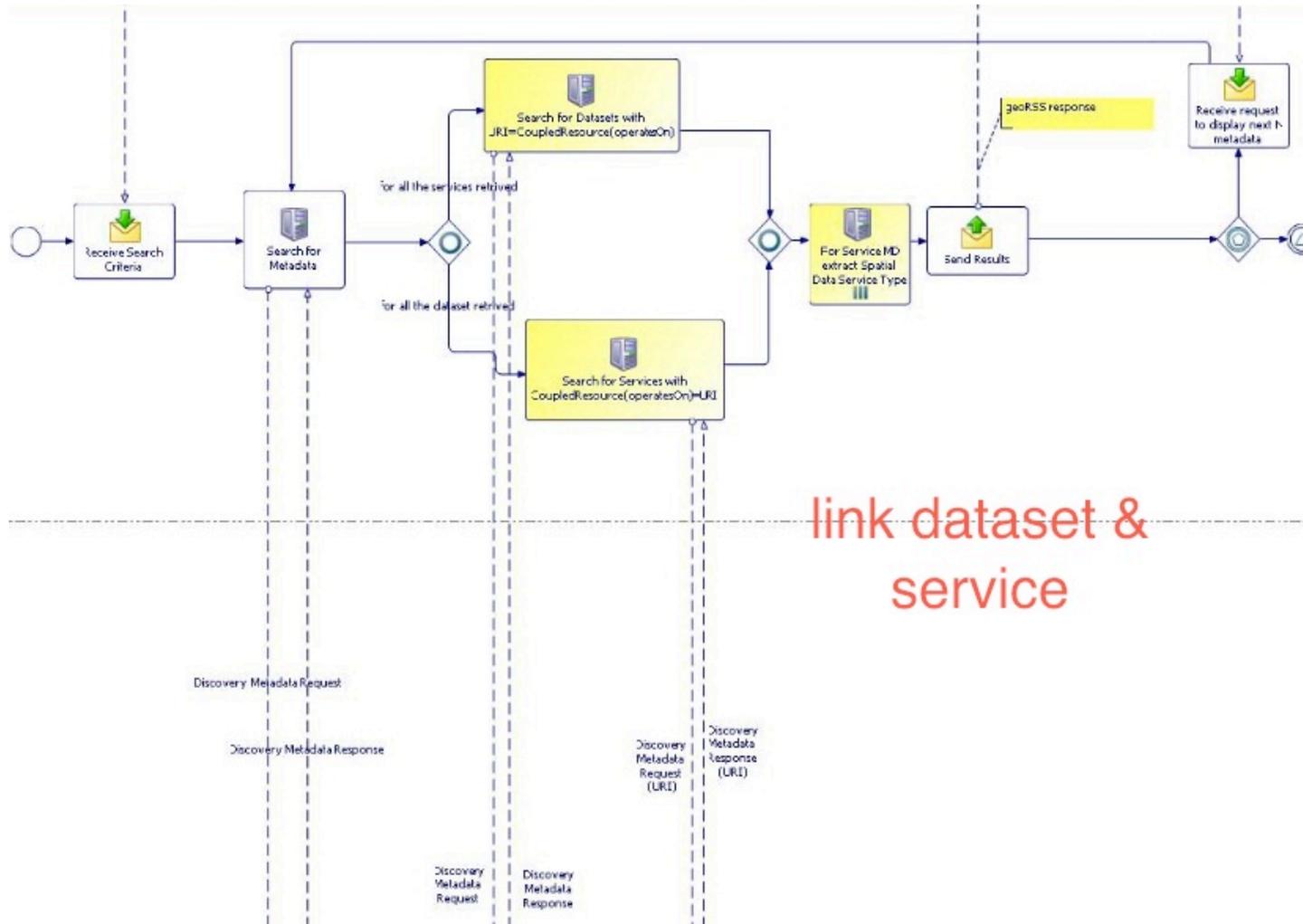
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Link INSPIRE services (workflow)

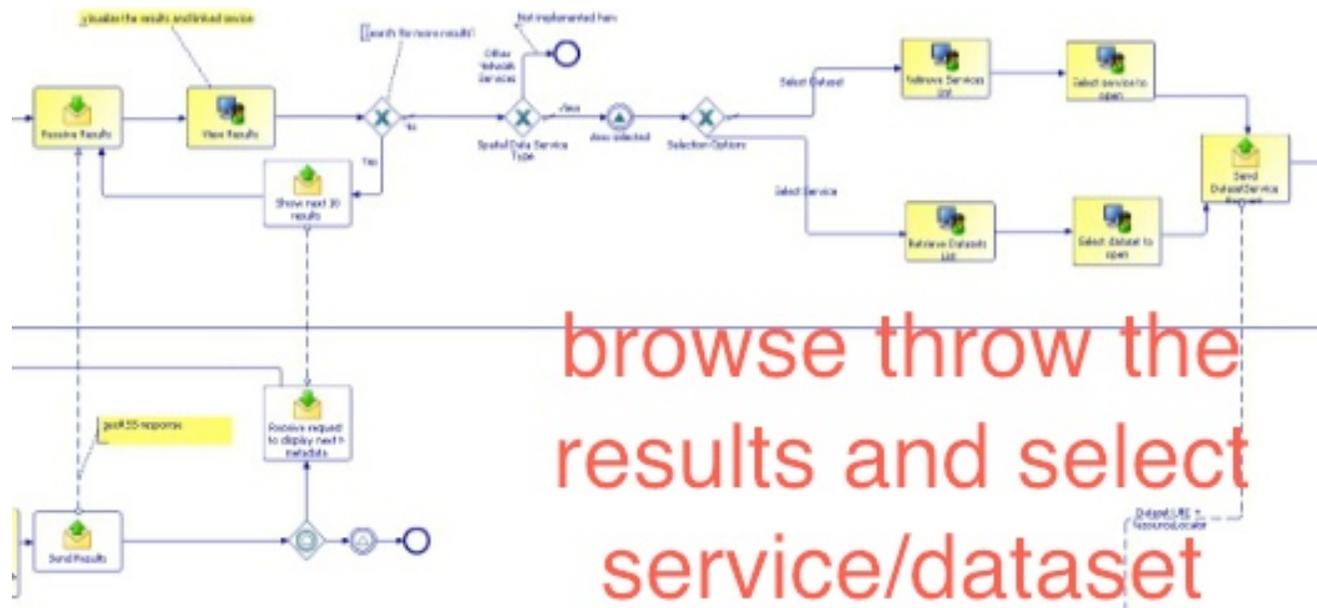
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Link INSPIRE services (workflow)

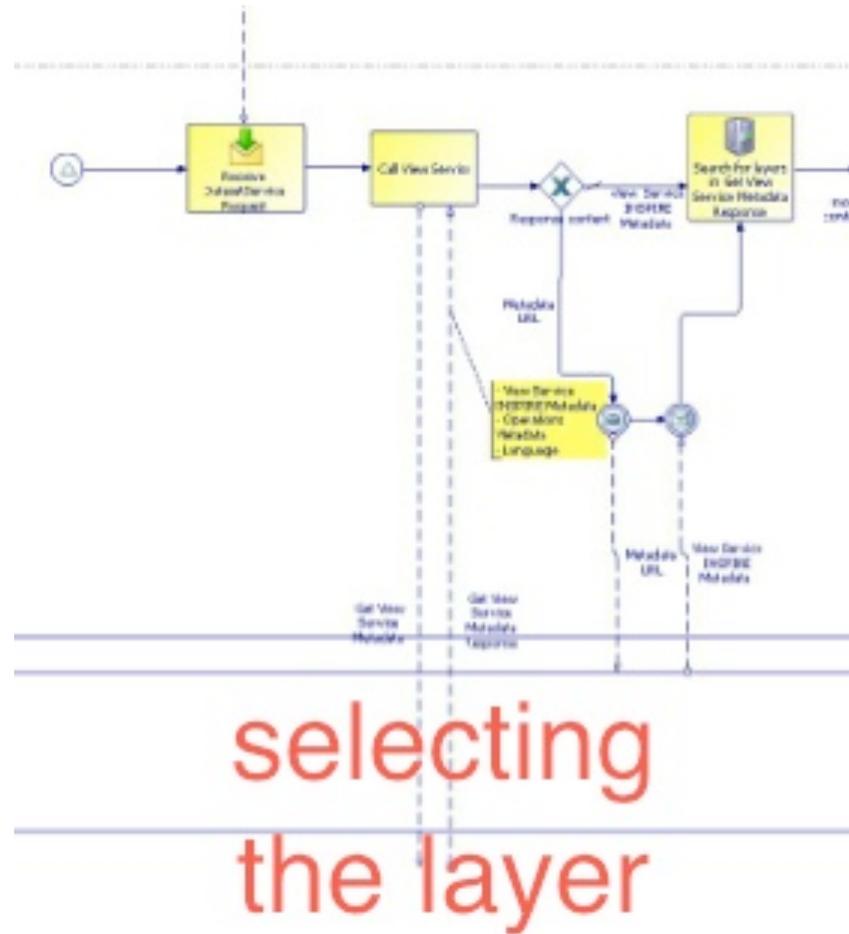
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Link INSPIRE services (workflow)

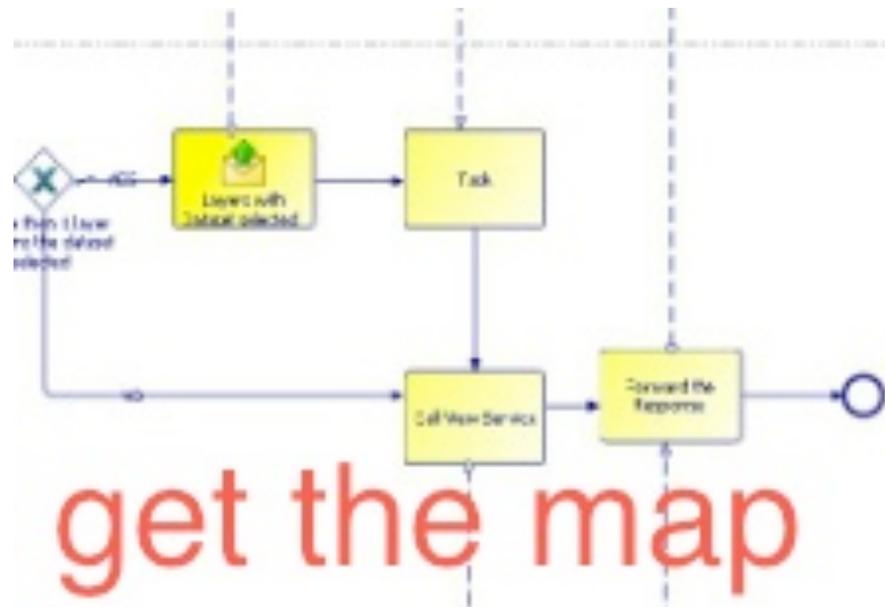
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Link INSPIRE services (workflow)

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Geoportal prototype Future development

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- Following the Interoperability arrangements in the context of Initial Operating Capability
- Multilinguality
- Ontology
- Download Services
- Transformation, Invoke Services
- Extend the link INSPIRE services
- Integrating Registry component in the INSPIRE architecture



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Web Site: <http://www.inspire-geoportal.eu>

For more information contact

inspire-geoportal@jrc.ec.europa.eu

