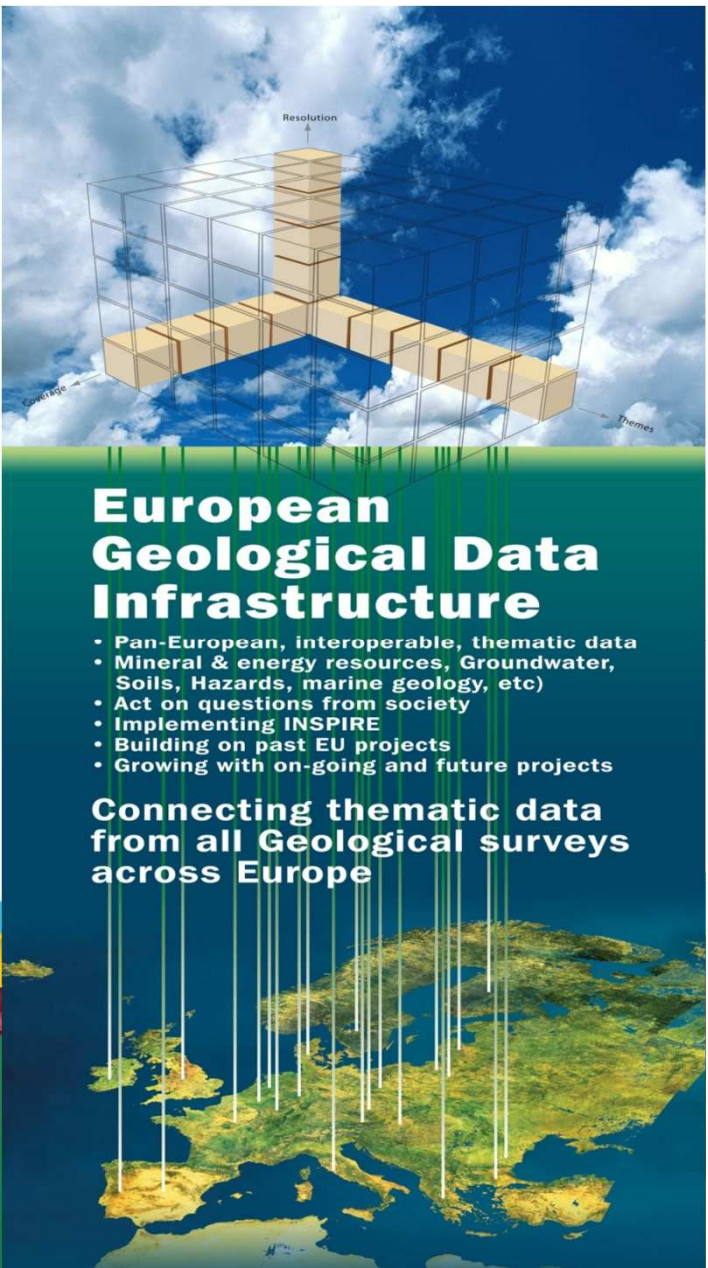




# EGDI-Scope: towards a European Geological data Infrastructure

EGDI-scope team



**European  
Geological Data  
Infrastructure**

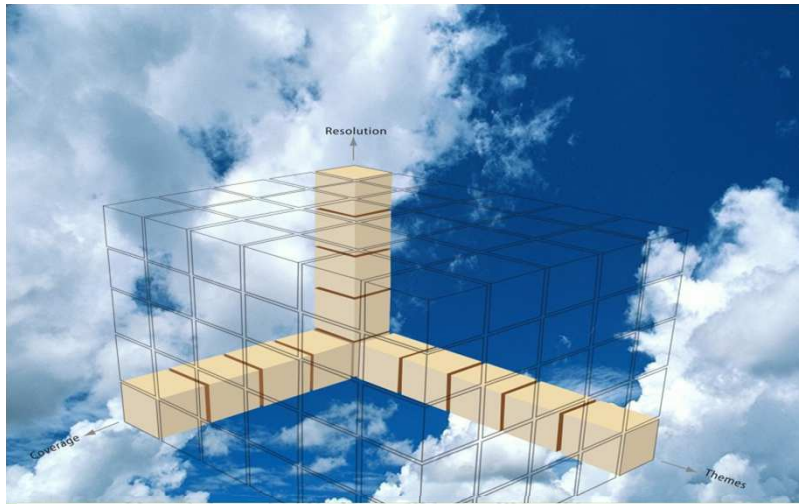
- Pan-European, interoperable, thematic data
- Mineral & energy resources, Groundwater, Soils, Hazards, marine geology, etc)
- Act on questions from society
- Implementing INSPIRE
- Building on past EU projects
- Growing with on-going and future projects

**Connecting thematic data  
from all Geological surveys  
across Europe**

Workshop Ingeoclouds EGDI-Scope/  
Minerals4EU  
Brussels,  
~20 November 2013

# European Geological Surveys

Co-funded by the European Union





## Towards a European Geological Service

**EP** Committee on Industry Research and Energy report “on an effective raw materials strategy for Europe” (2011/2056(INI)):

*[...] welcomes [...] **cooperation between national geological surveys**; calls for increased collaboration between them and encourages the use of common standards and practices that would facilitate the **exchange and exploitation of available geological data**; [...]; asks the Commission to assess whether the creation of an **EU Geological Service** that pools the work of national surveys and works with international partners is necessary; supports the Commission’s work in improving the EU’s geological knowledge base”.*

**EC** “Proposal for a European Innovation Partnership on Raw Materials” (COM(2012) 82):

*[...] the full benefits of an **appropriate coordination** or even integration of some of the activities of the EU’s different 27 geological surveys has not been achieved. Yet, innovative thinking based on increased networking and cooperation offers a huge potential to move forward. **Setting European standards** will facilitate the creation of a uniform **EU geological knowledge base**, and can also lead to a more cost-effective development and use of required modern technologies, such as satellite-based resource information and advanced 4D computer modelling systems.”*



## CHALLENGES FOR EUROPE

- › How to stimulate economic recovery and **create jobs** and growth?
- › How to **secure energy** and natural resources needed by citizens and industry?
- › How to secure clean water, sufficient food and a clean and **healthy environment**?
- › How to protect citizens against **natural hazards** and the consequences of **climate change**?
- › How to comply with global agreements and targets and maintain a solid position in a **rapidly changing global playing field**?

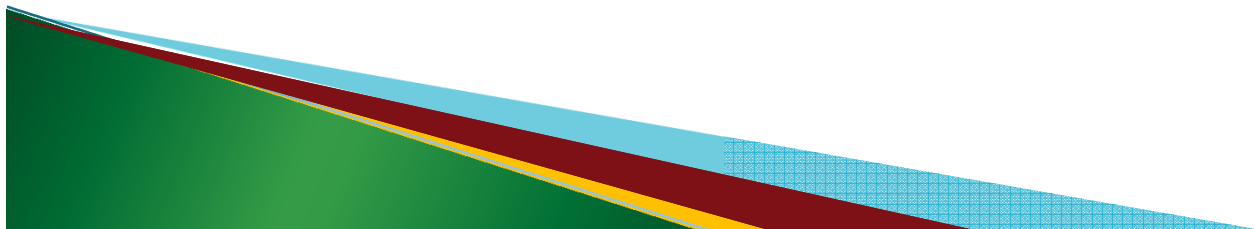
### EUROPE 2020 Targets:

- Increasing Employment
- Increasing investment in R&D
- Combatting Climate change and Increasing Energy Sustainability
- Better Education
- Fighting Poverty and social exclusion



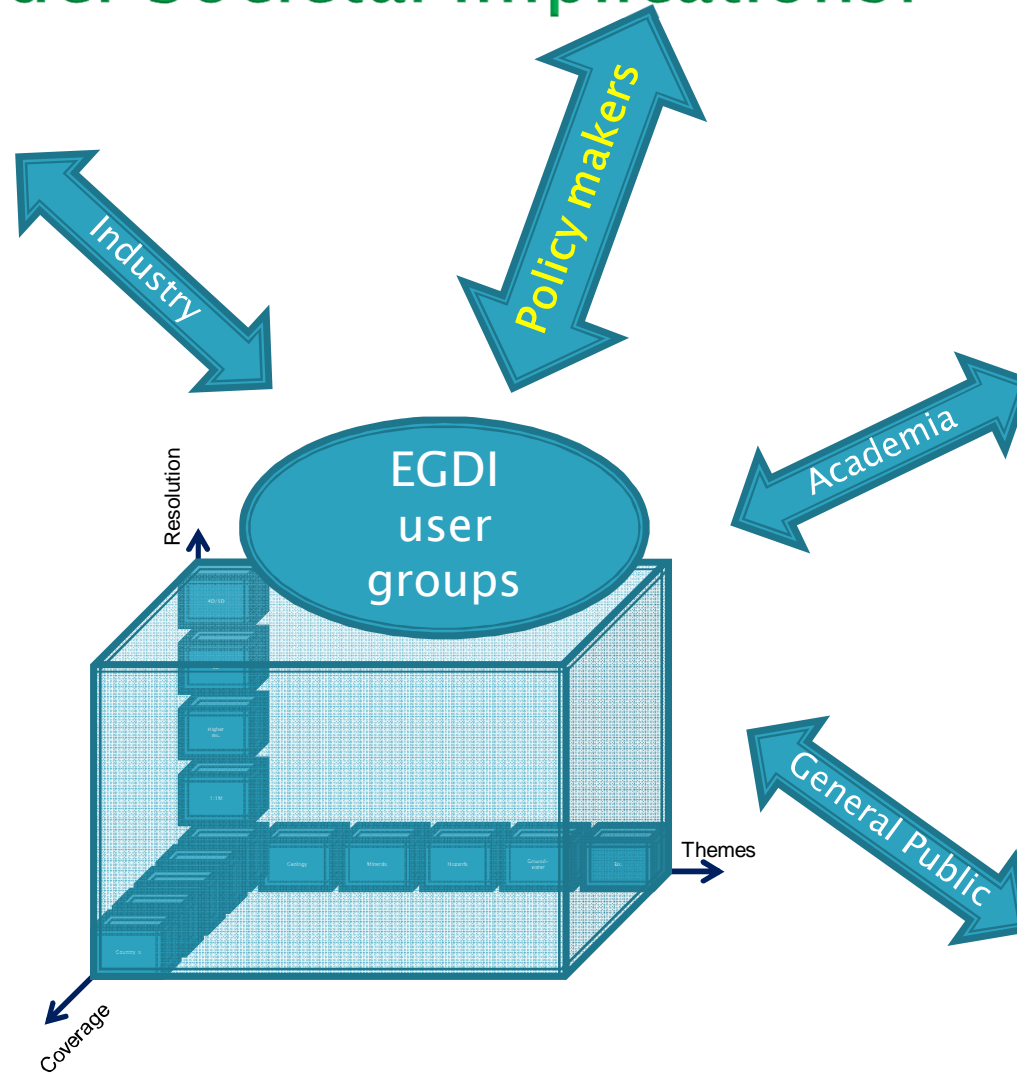
## EU CHALLENGES REQUIRE EU ANSWERS

- › Zooming in on geological knowledge and data to support policy development and implementation:
  - › **Raw Materials** Initiative
  - › Thematic strategy on the prevention and **recycling of waste**
  - › SET Plan (to establish an **energy policy** for Europe)
  - › **Soil** thematic strategy
  - › Blue Growth (maritime/marine)
  - › Water Framework Directive
  - › INSPIRE
  - › etc.





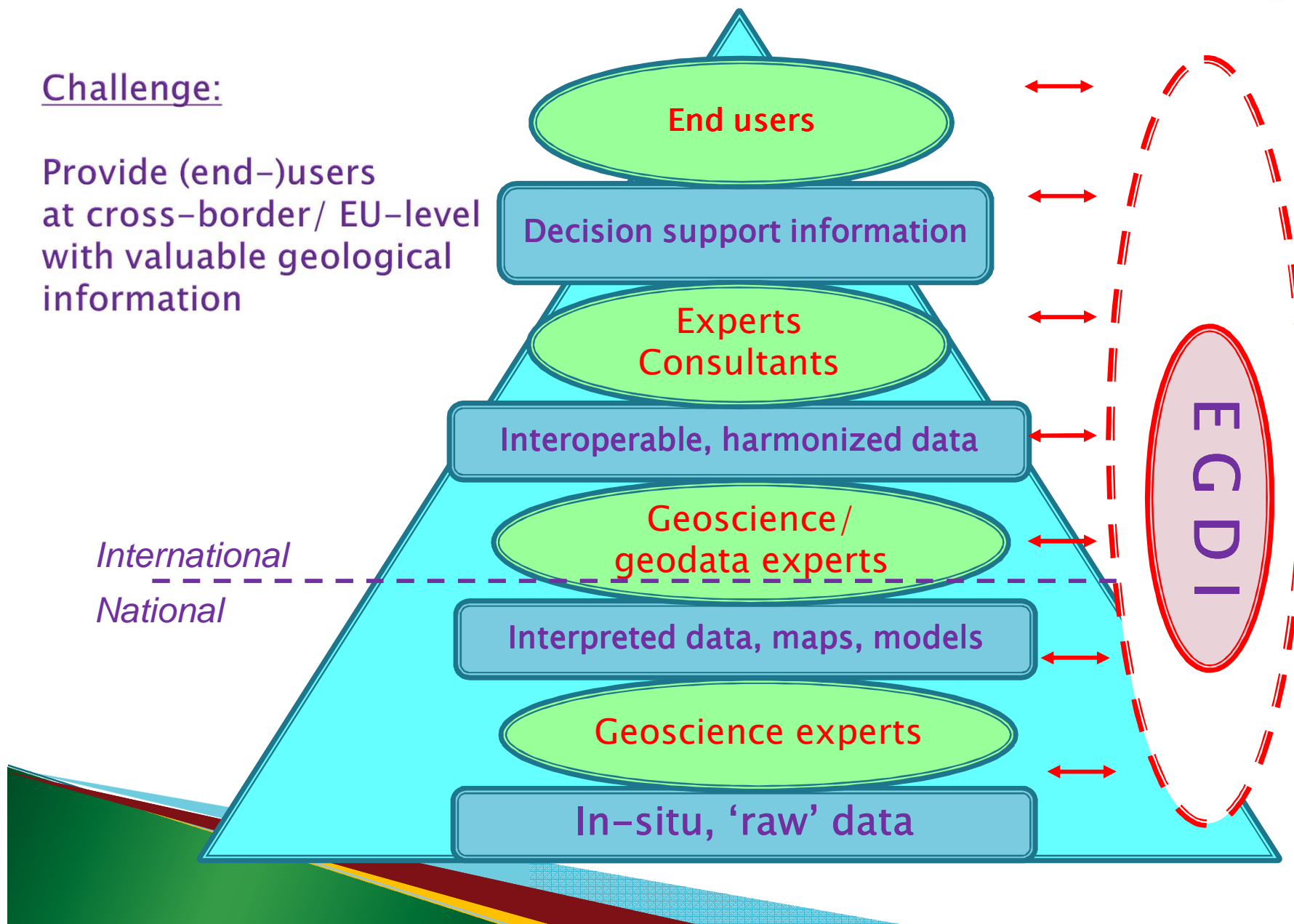
# Wider Societal implications?





Challenge:

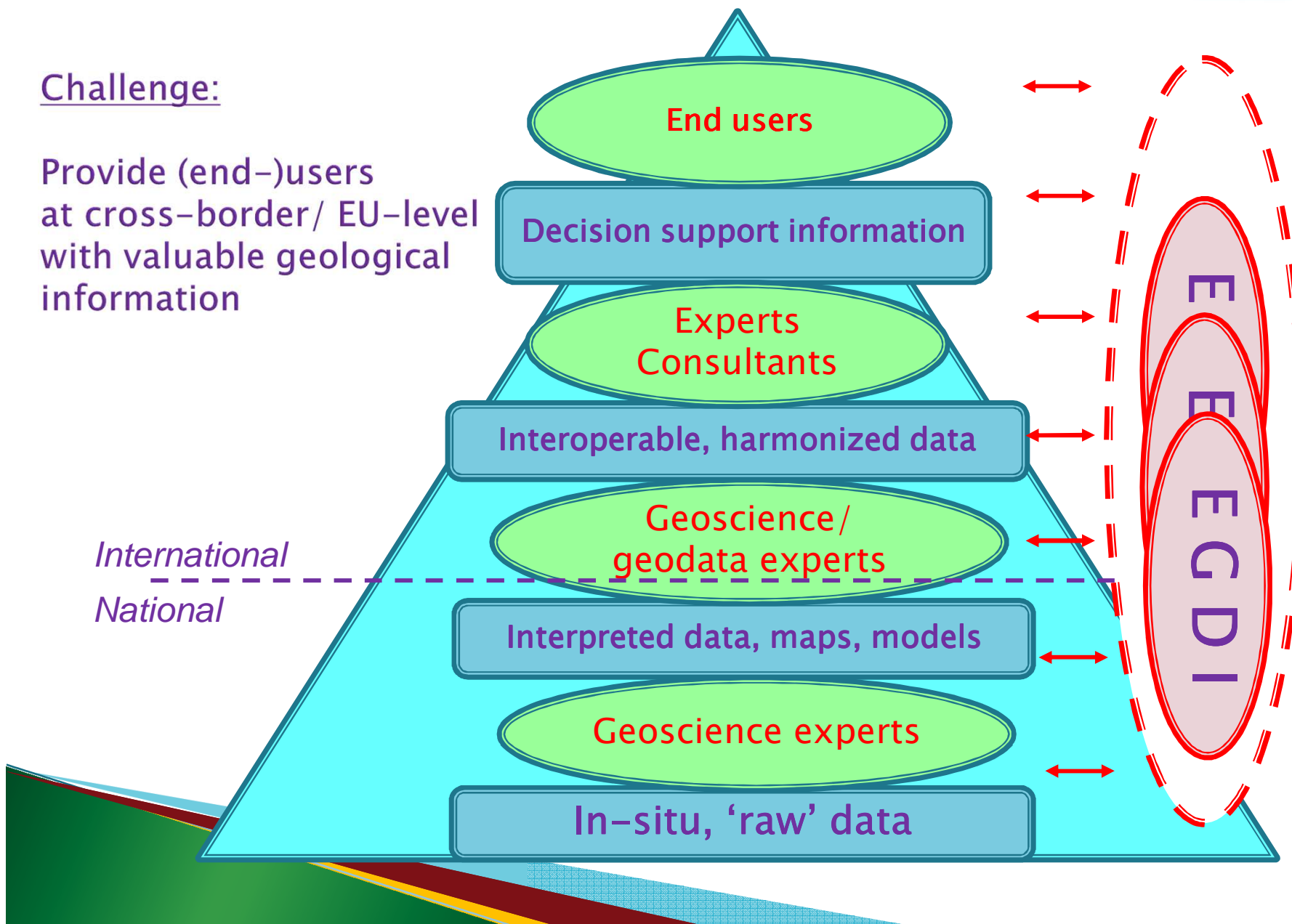
Provide (end-)users  
at cross-border/ EU-level  
with valuable geological  
information





Challenge:

Provide (end-)users  
at cross-border/ EU-level  
with valuable geological  
information





# Infrastructure concepts

## A 3 tier architecture: (based on GEOSS)

### *Common elements*

#### Registries:

- Components
- Standards
- Best practices
- Vocabularies
- Objects dictionary
- Portrayal rules
- ...

### *Client tier*

Portal

Applications

### *Mediation tier*

Catalogue

Workflow  
management

User  
management

Portrayal  
servers

Processing  
servers

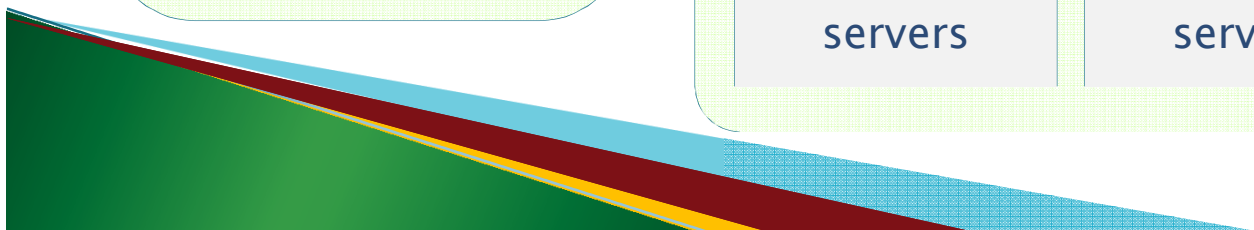
Access  
brokers

### *Access tier*

Data  
servers

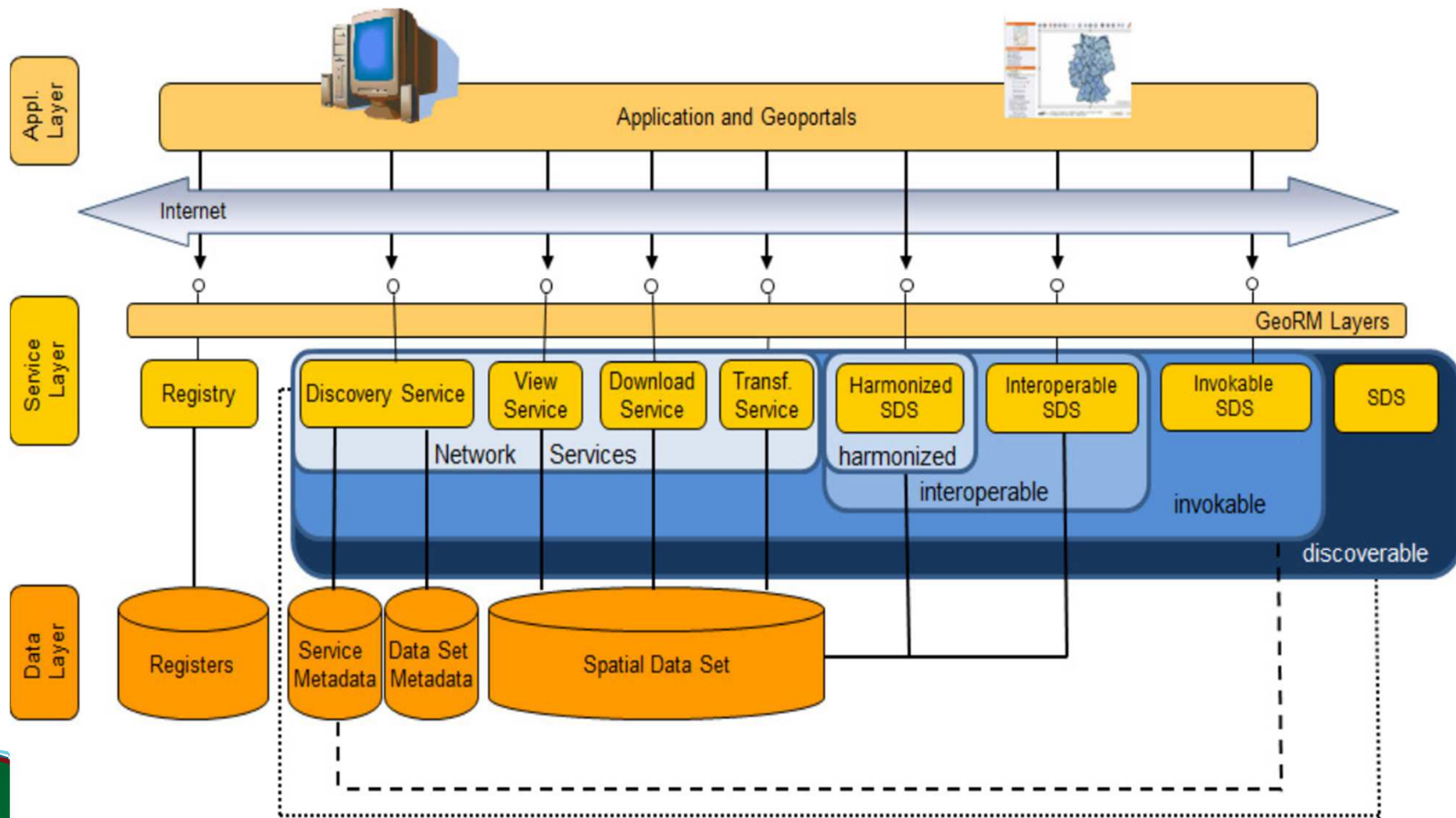
Sensor Web  
servers

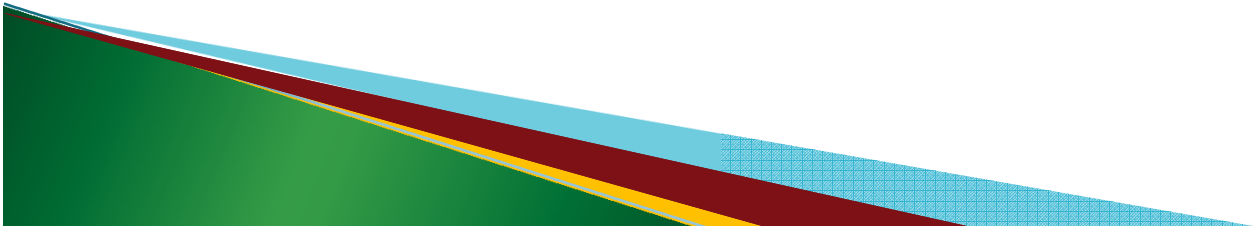
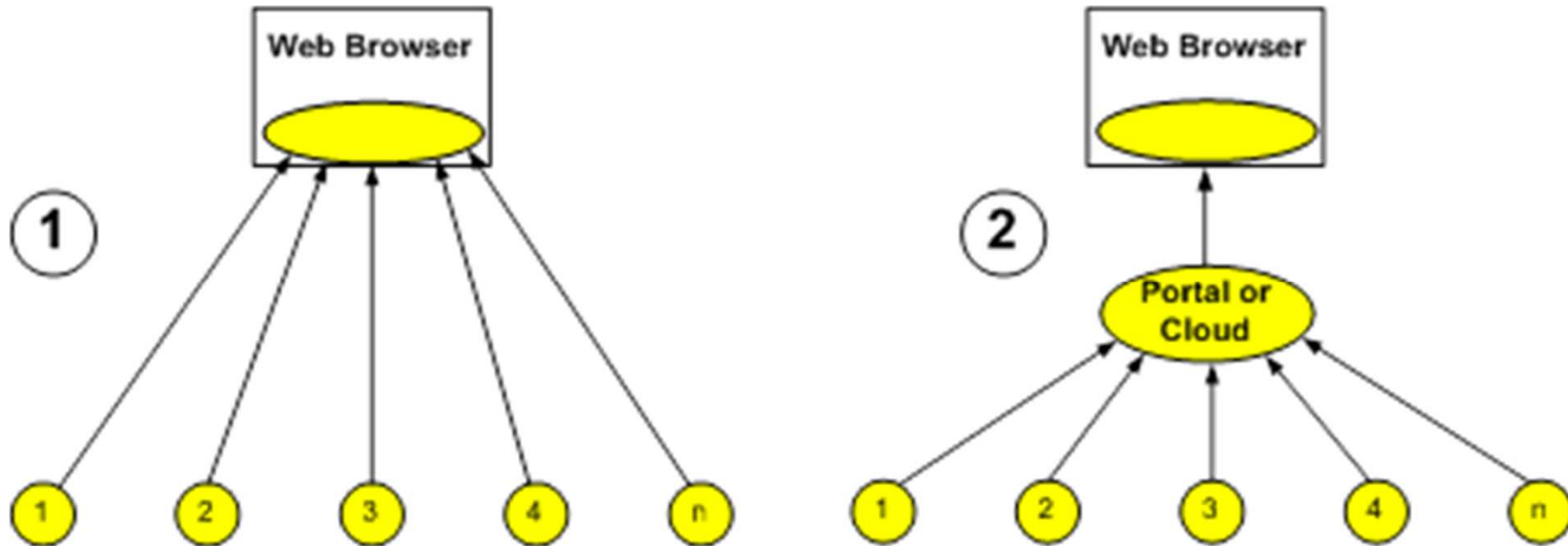
Model Web  
servers



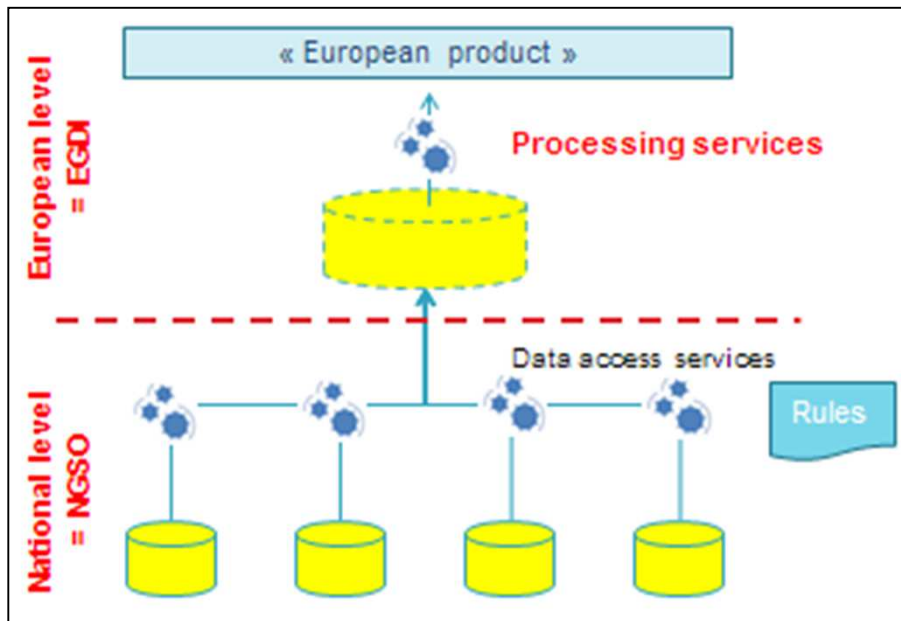


# INSPIRE requirements for architecture

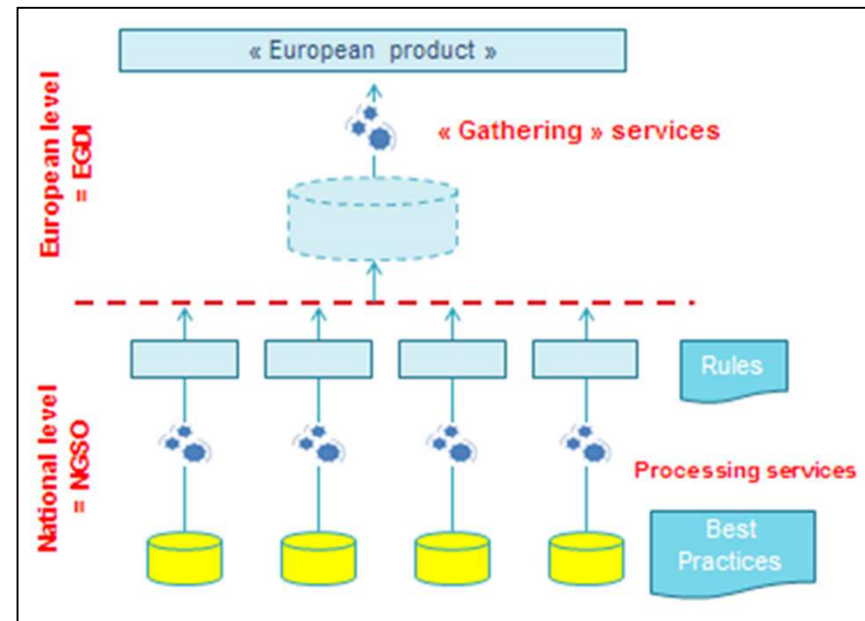




## What level of interoperability to provide European geological products?



To harmonize **raw data**, move and process them at European level to create the product



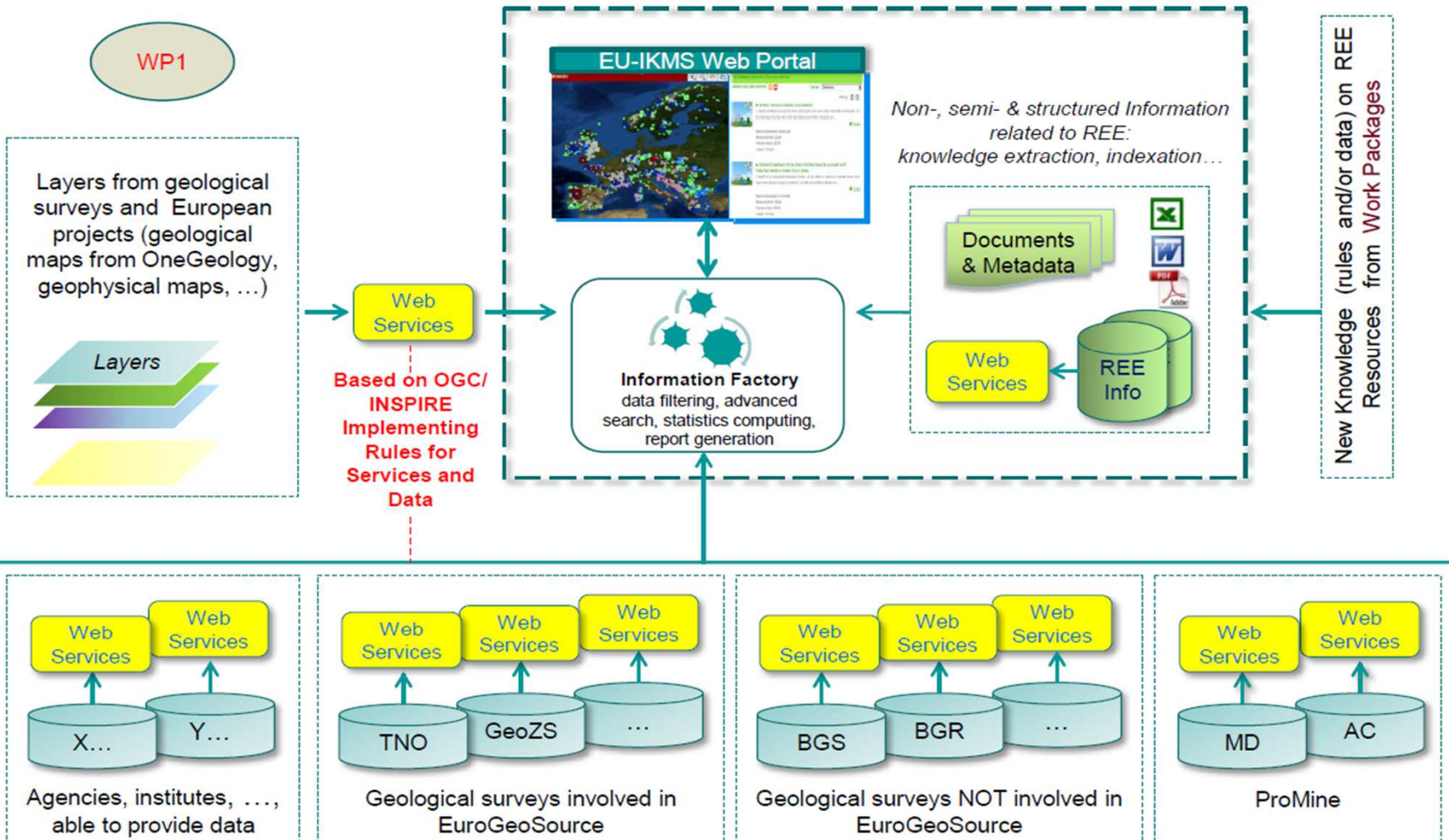
To harmonize **product**, move national part to European level and “gather” them

# Infrastructure design



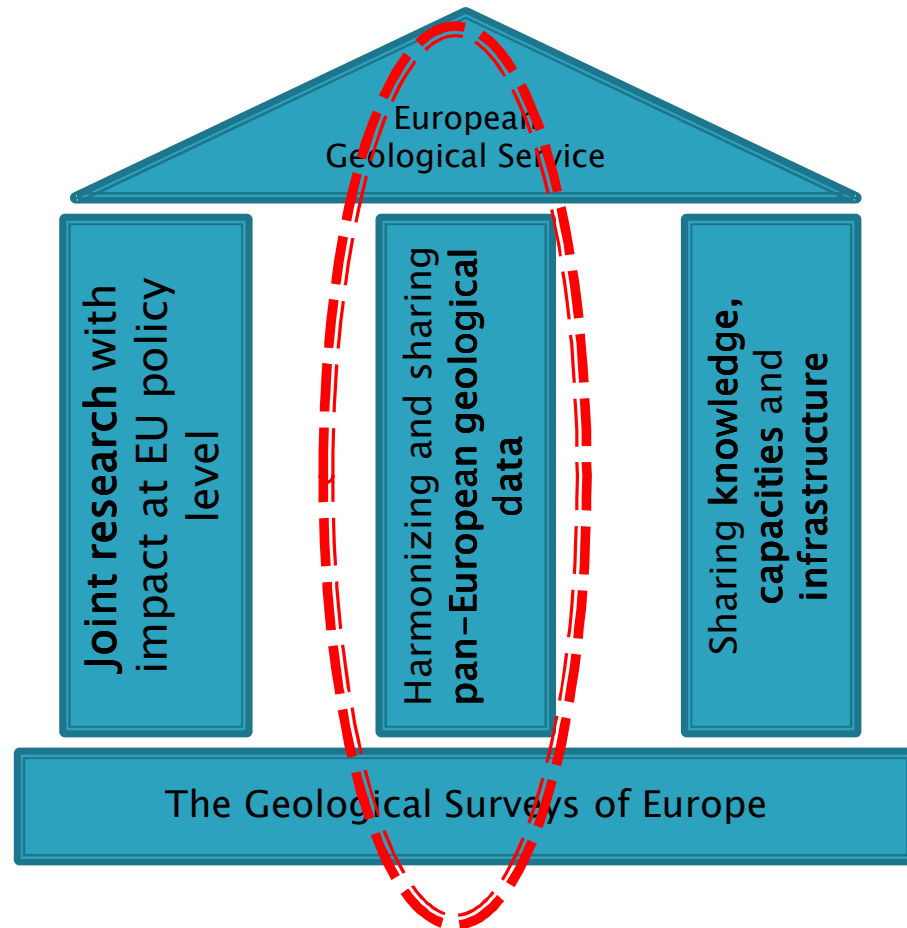
WP1

EU-FP7 Project EURARE: Proposal for the architecture of the Integrated Knowledge Management System



## EuroGeoSurveys: towards a European Geological Service

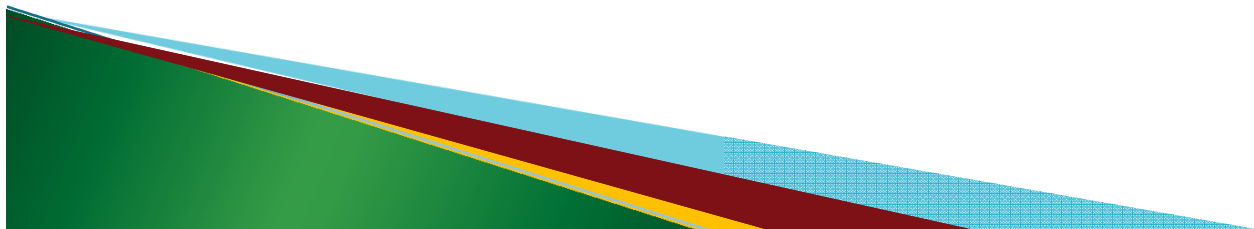
- › How to jointly develop supporting knowledge on EU topics?
- › How to achieve interoperability of data, information and models on schematic, semantic and conceptual levels?
- › How to effectively support the European Commission with high level knowledge on a pan-European level?
- › How to secure mandates and durable funding?

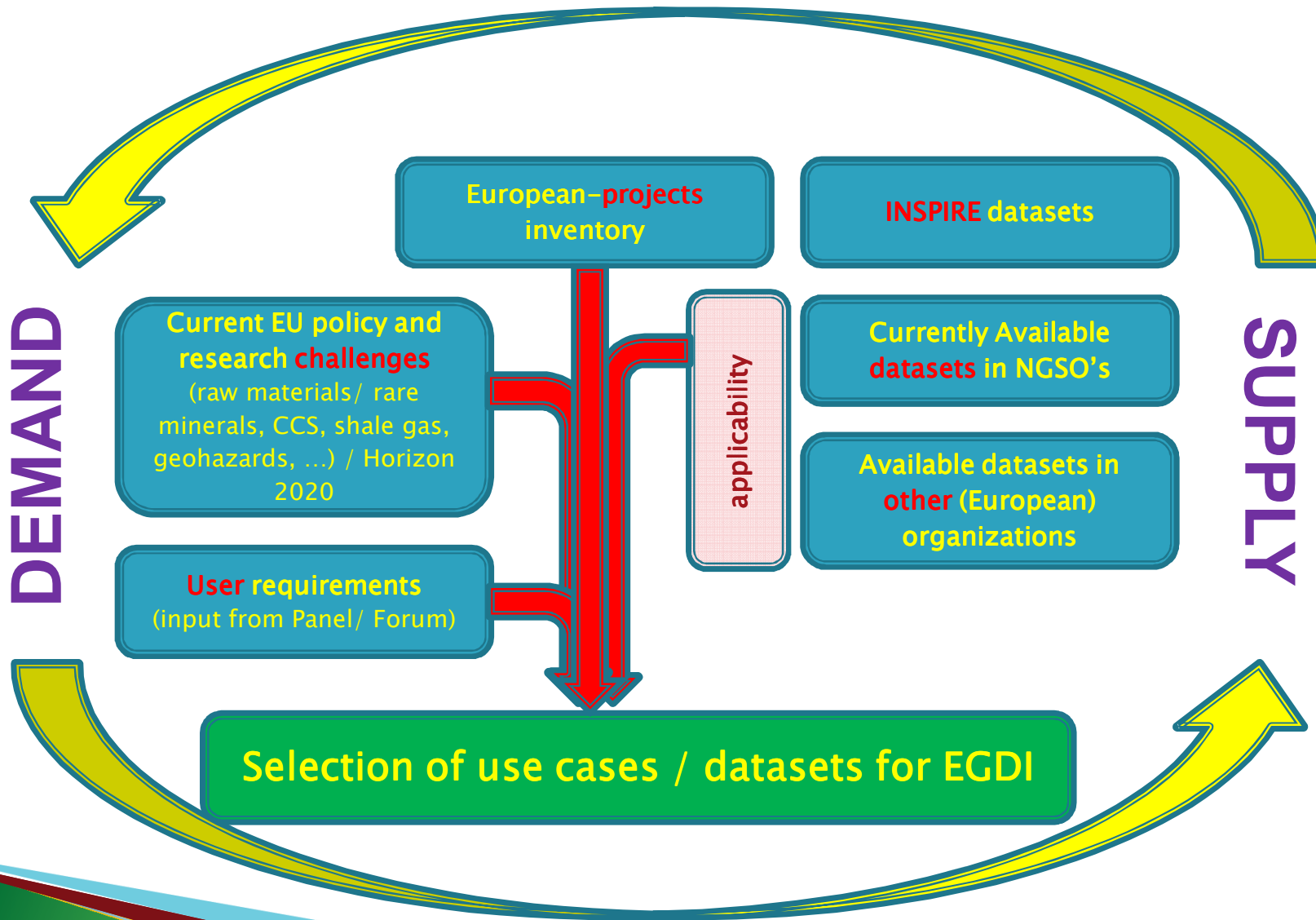




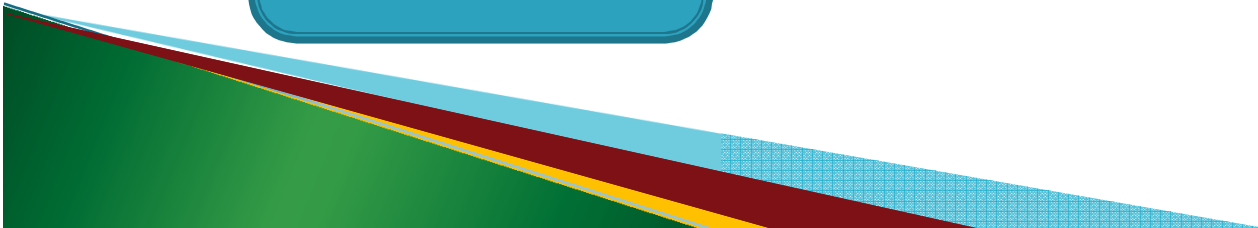
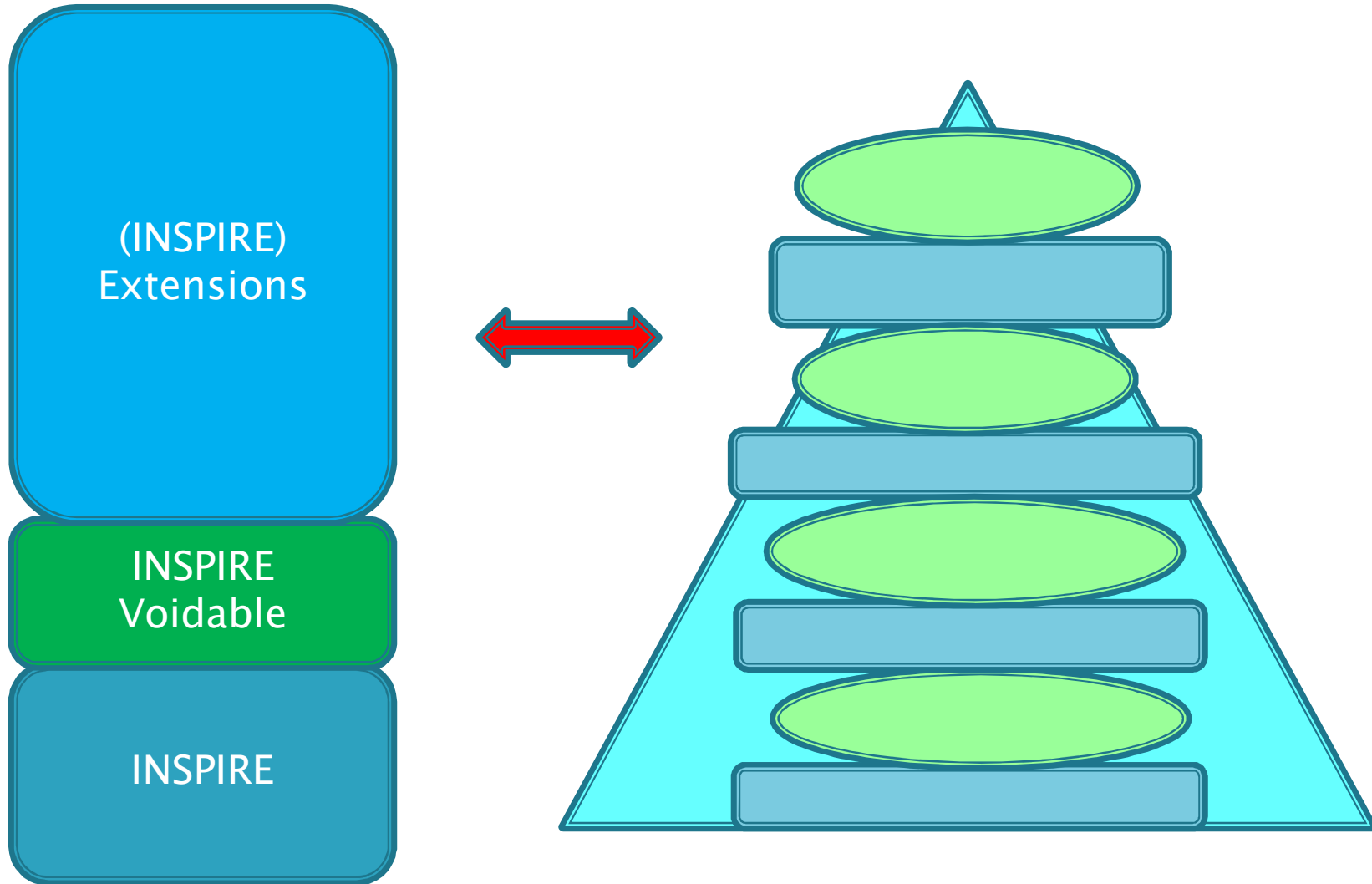
## Outlook EGDI-Scope Period 2 *(planning, results, wider implications)*

**Towards the Overall Implementation  
Plan for the EGDI**

A large, solid red triangle pointing downwards, positioned to the right of the main text.



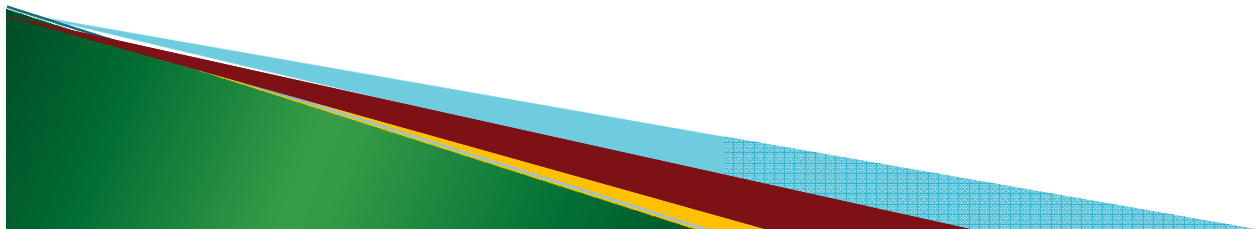
# INSPIRE Datasets/ use cases EGDI



## Use cases / prioritized thematic areas

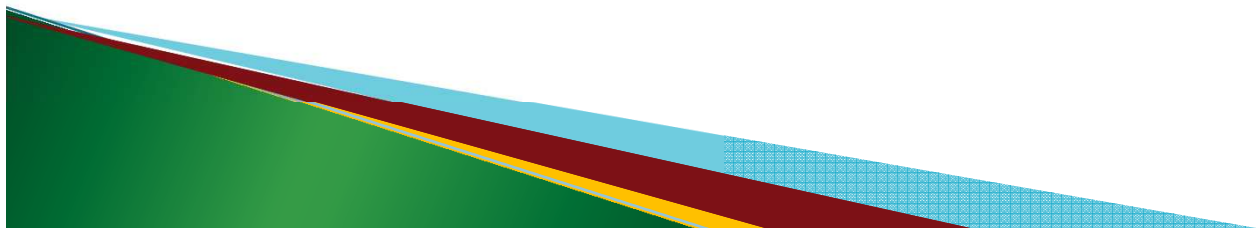
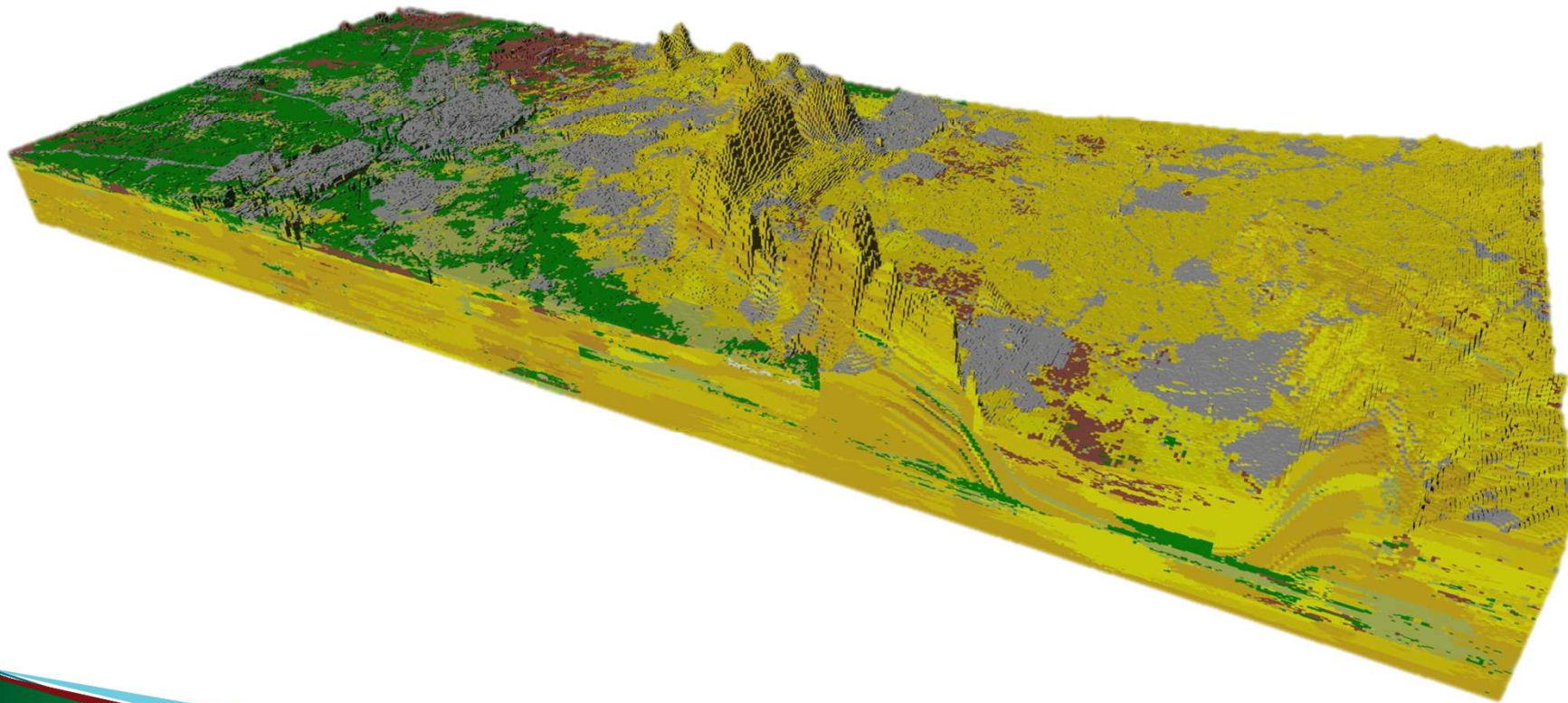


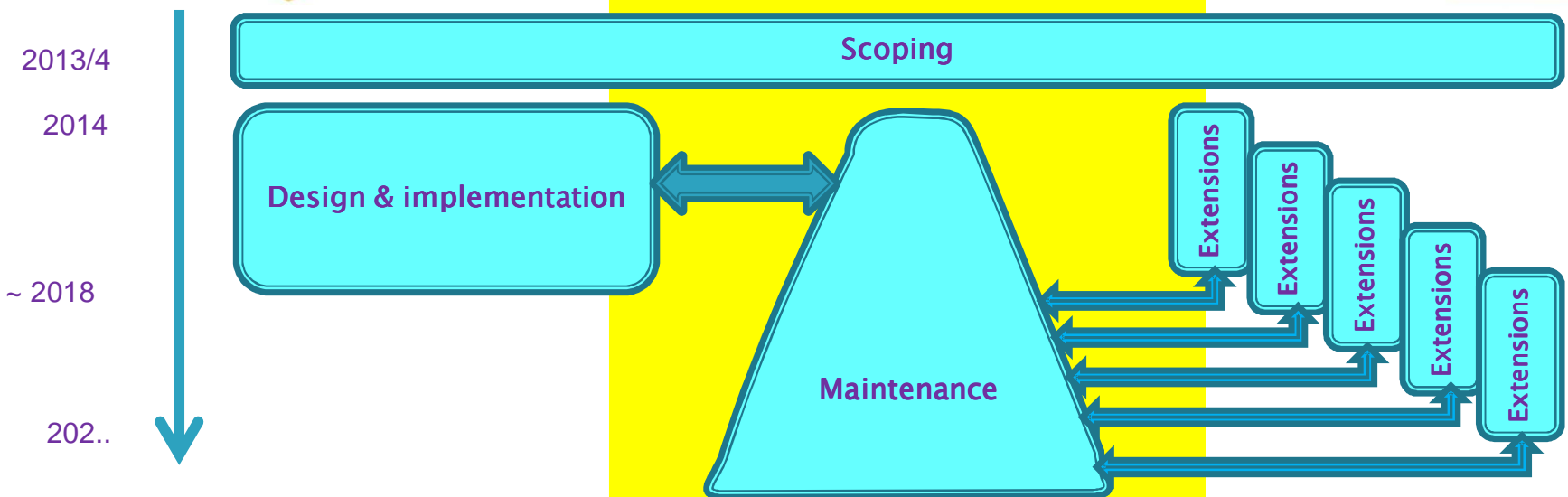
- ▶ (Basic:) Geology
- ▶ Mineral resources / raw materials
- ▶ Geohazards
- ▶ Soils
- ▶ Water quality
- ▶ Environment / climate change





# Integration of 3D modeling





**Tasks**

- Priority use cases/ datasets
- Building forward on INSPIRE and existing project results

- Data management INSPIRE specs/ standards etc.
- Licenses/ ICT services/ hardware etc.
- Contact point

- Multiple (harmonization) projects in multiple domains

**Consortium/ representation all surveys**

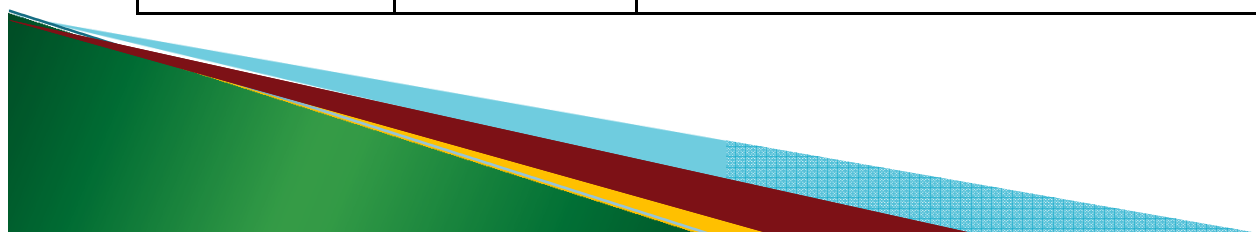
**Operational structure**

**Project consortia**



## Legal Frameworks & Licensing

Title	Location	URL
APIE	France	<a href="https://www.apiefrance.fr/sections/actualites/des-conditions-generales-pour-la-reutilisation-des-informations-publiques/view">https://www.apiefrance.fr/sections/actualites/des-conditions-generales-pour-la-reutilisation-des-informations-publiques/view</a>
Creative Commons	Global	<a href="http://creativecommons.org">http://creativecommons.org</a>
ECOMET	Europe	<a href="http://www.ecomet.eu/index.php?option=com_content&amp;view=article&amp;id=2&amp;Itemid=3">http://www.ecomet.eu/index.php?option=com_content&amp;view=article&amp;id=2&amp;Itemid=3</a>
ESDIN	European Union	
GeoConnections	Canada	<a href="http://www.geoconnections.org/publications/Best_practices_guide/Guide_to_Best_Practices_Summer_2008_Final_EN.pdf">http://www.geoconnections.org/publications/Best_practices_guide/Guide_to_Best_Practices_Summer_2008_Final_EN.pdf</a>
Geo Shared	Netherlands	<a href="http://www.geonovum.nl/diensten/gebruiksvoorwaarden">http://www.geonovum.nl/diensten/gebruiksvoorwaarden</a>
Government Information Licensing Framework	Queensland, Australia	<a href="http://www.gilf.gov.au/">http://www.gilf.gov.au/</a>
INSPIRE basic & specific licence	European Union	<a href="http://inspire.jrc.ec.europa.eu/documents/Data_and_Service_Sharing/DSSDraftGuidancedocument_v4.1.pdf">http://inspire.jrc.ec.europa.eu/documents/Data_and_Service_Sharing/DSSDraftGuidancedocument_v4.1.pdf</a>
Ministry of Justice	France	<a href="http://www.rip.justice.fr/1932-simplified-licence-%C2%AB-conditions-of-the-reuse-of-public-information-that-is-freely-reusable">http://www.rip.justice.fr/1932-simplified-licence-%C2%AB-conditions-of-the-reuse-of-public-information-that-is-freely-reusable</a>

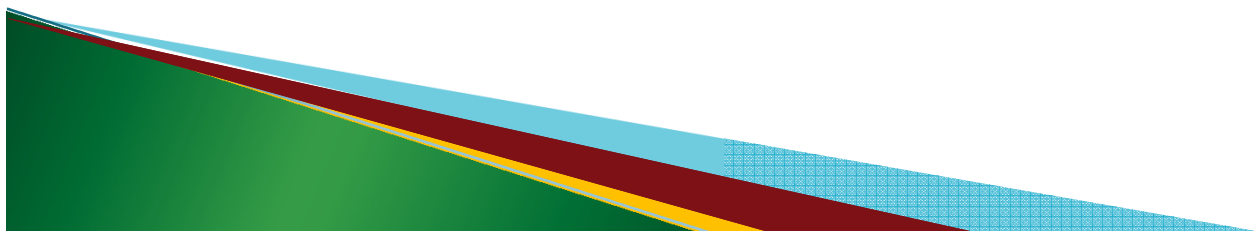




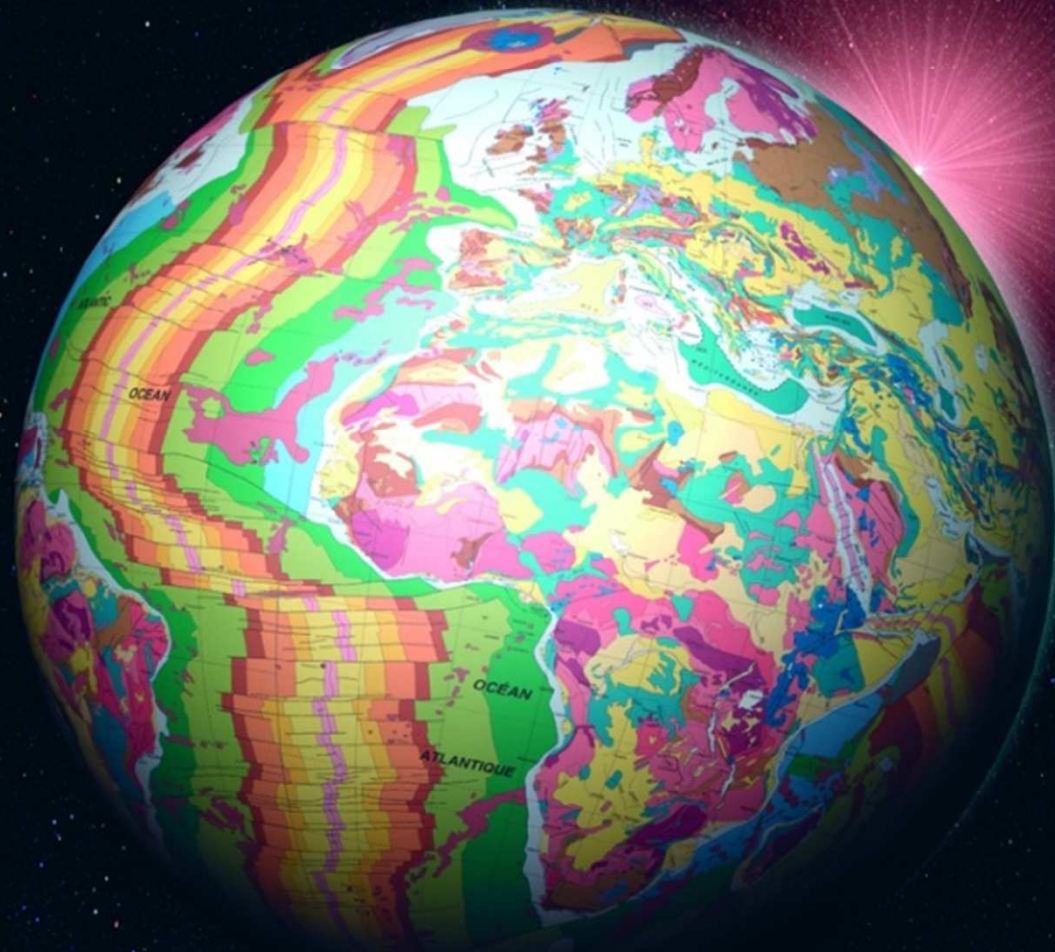
# InGeoClouds/ Technology requirements ??

- ▶ Cloud or not?
- ▶ Distributed/ central infrastructure?
- ▶ Legal aspects?
- ▶ Governance?
- ▶ INSPIRE?
- ▶ Added-value services / linked open data?
- ▶ ...

→ Pilot/ case study EGDI implementation?

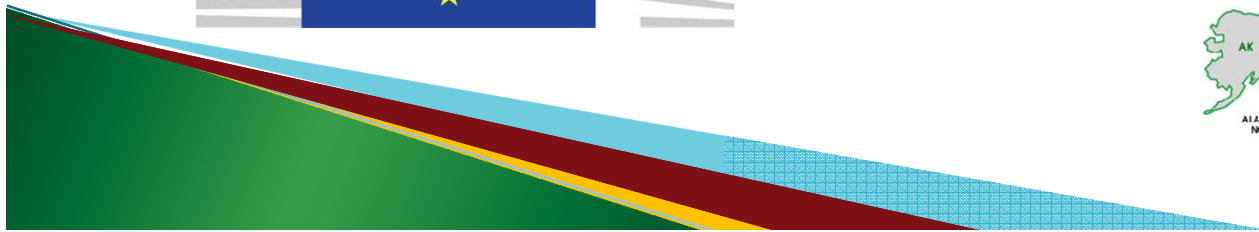
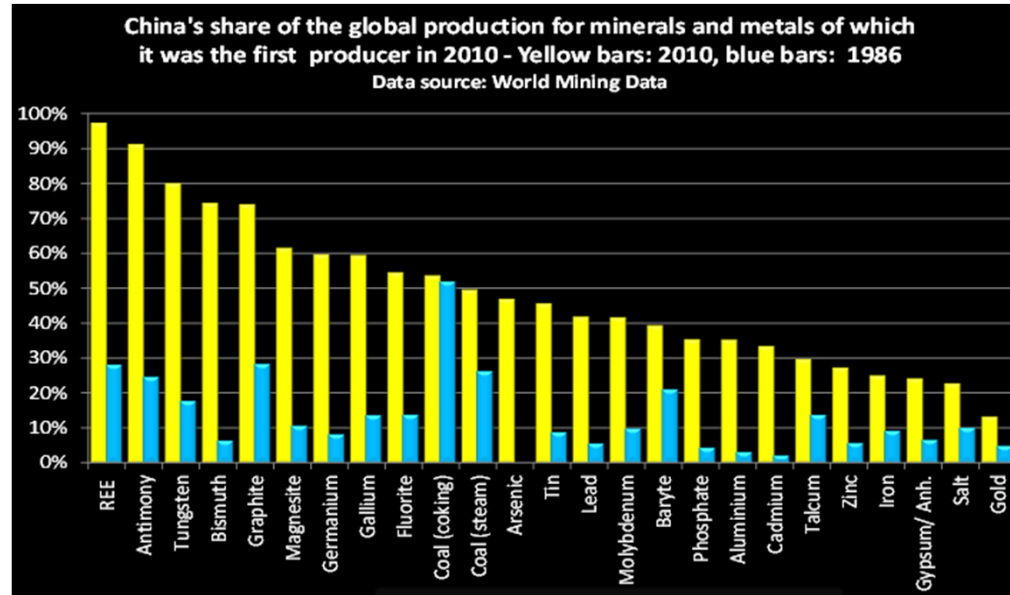


**Thank you for your attention**





# Example: Minerals and (rare) metals resources in Europe







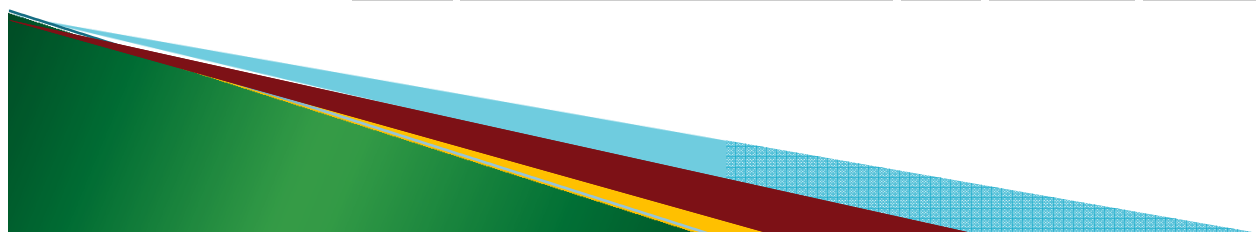
- ▶ **Stakeholder Consultation (WP2):**
  - Data needs?
  - Requirements EGDI?
  
- ▶ **Inventory and prioritization datasets (WP3)**
  - Held by NGSO's and other institutions
  
- ▶ **Design (technical) infrastructure (WP4)**
  - Requirements
  - Hardware, software, skills
  
- ▶ **Develop legal framework (WP5)**
  - Governance
  - Licensing issues
  
- ▶ **Communication and dissemination (WP6)**
  - Connection with 'wide' consortium of EGS-members
  - Target groups
  
- ▶ *Develop overall implementation Plan (all)*





## Tasks and deliverables EGDl-SCOPE

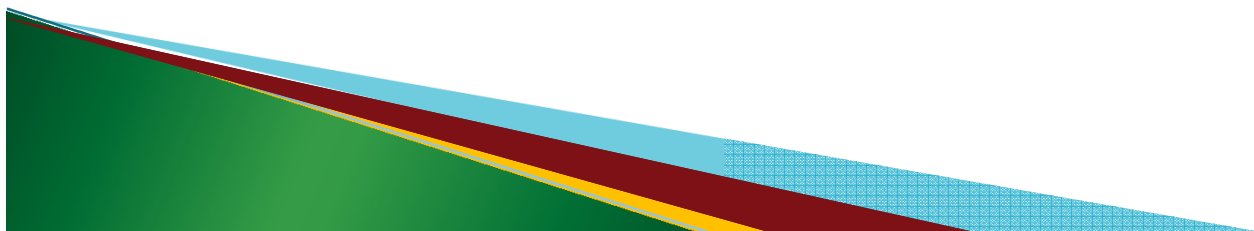
Del. no.	Deliverable name	WP no.	Lead beneficiary	Delivery date from Annex I (proj month)	Actual / Forecast delivery date
D2.1	List of stakeholders and detailed plan for workshop, questionnaire and interviews	2	GEUS	M3	M3
D2.2	Report on user needs for datasets and services	2	GEUS	M9	M11
D2.3	Report on technical ( <i>functional</i> ) user requirements and use cases	2	GEUS	M12	05/09/2013
D3.1	Inventory of previous and ongoing projects	3	BGS	M6	M6
D3.2	Inventory of relevant datasets	3	BGS	M12	05/09/2013
D4.1	Report on evaluation of existing interoperable infrastructures	4	BRGM	M6	M6





## Tasks and deliverables EGDI-Scope

Del. no.	Deliverable name	WP no.	Lead beneficiary	Delivery date from Annex I (proj month)	Actual/ Forecast delivery date
D5.1	Report on trust and authentication	5	KU Leuven	M12	05/09/2013
D6.1	Web-based management tool	6	EGS	M1	M3
D6.2	Communication and dissemination strategy and dissemination database	6	EGS	M3	M3
D6.3	Project website (content to be updated throughout the project), “look and feel” and templates	6	EGS	M4	M4
D6.4	Dissemination materials	6	EGS	M12	M12

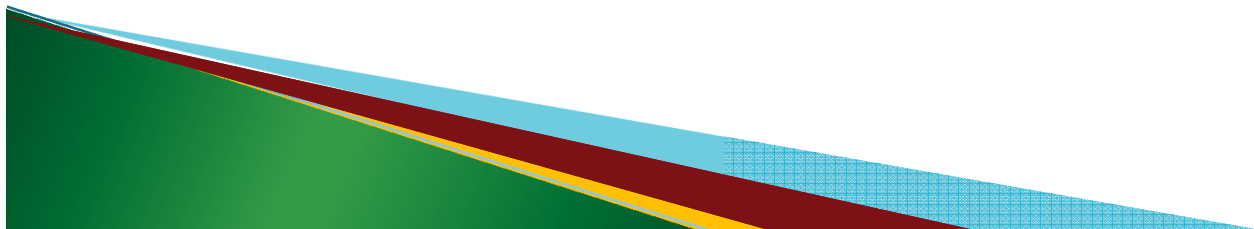




## Financial overview

Work Package	Partner						MM spent	MM total	%
	TNO	BRGM	BGS	GEUS	EGS	KULeuven			
WP1	6,24	0,45	0,56	0,00	0,25	0,00	7,50	13,50	55,6%
WP2	0,95	0,34	0,66	5,79	2,00	0,00	9,74	14,00	69,6%
WP3	0,67	0,21	5,51	0,09	0,00	0,00	6,48	16,00	40,5%
WP4	0,46	2,37	0,63	0,04	0,00	0,00	3,50	16,00	21,9%
WP5	0,62	0,00	0,00	0,00	0,50	5,00	6,12	11,50	53,2%
WP6	0,53	0,06	0,19	0,02	3,50	0,00	4,30	10,50	41,0%

Contr EU	67636	29843	53926	55193	94787	21214	<b>322599</b> (total)
Contr EU Max.	144140	92341	114747	119015	279239	80518	<b>830000</b> (total)
%	46,9%	32,3%	47,0%	46,4%	33,9%	26,3%	<b>38,9%</b>





## Main achievements

- ▶ **Kick-off meeting June 2012, Brussels:**
  - Unique Representation 24 European Geological Surveys
  - Shared vision on EGDI program
  
- ▶ **Comprehensive overviews:**
  - 80+ European geological projects
  - Connected interoperable infrastructures
  - INSPIRE datasets (geology and related)
  - Other datasets NGSO's
  
- ▶ **Key topics legal framework**
  - Trust in data, services, people
  - Case 'Google'
  
- ▶ **Connection to key stakeholders and programs**
  - DG RTD, JRC, EEA, ESA, Insurance Europe
  - EPOS, ESA, GEO/GEOSS





## Financial and administrative issues

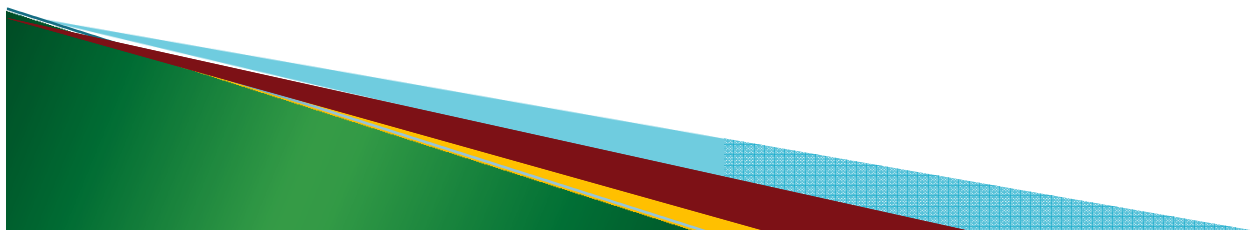
- ▶ Finalize administrative issues Rep. Period 1
- ▶ Review and follow-up
- ▶ Possible amendment
  - (budget swap from EGS travel costs)
- ▶ Process until end date 31<sup>st</sup> May 2014





## Main achievements (2)

- ▶ **Clarification of use cases**
  - Rare earth/ minerals resources
  - Ground instability
  - Environmental impacts
  - Offshore wind farms
  
- ▶ **Assessment technical requirements**
  - 3 tier architecture GEOSS
  - Assessment of distributed/ central functionalities
  
- ▶ **Communication/ Dissemination**
  - Materials & presentations at > 15 international meetings/ events
  - large exposure in geoscientific community

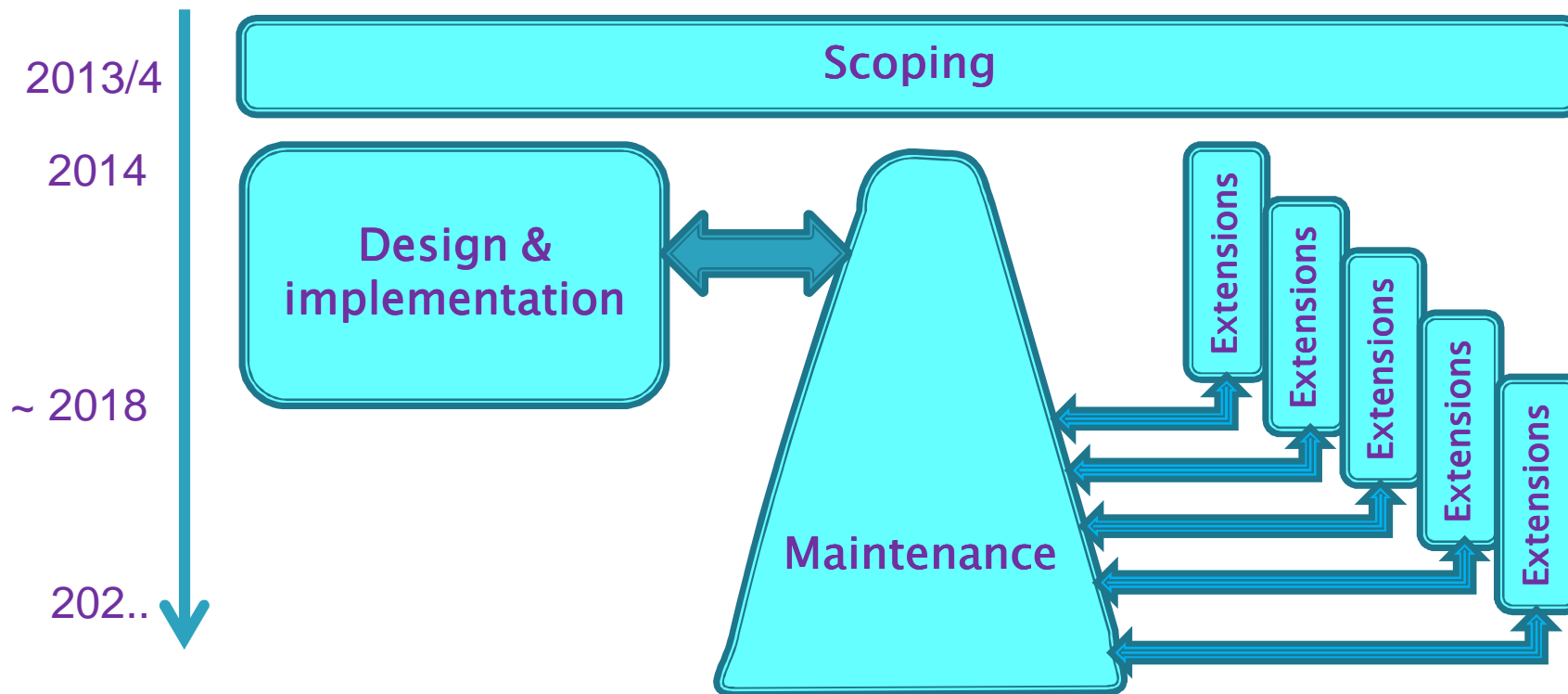


## WT2: List of Deliverables

Project Number <sup>1</sup>		312846		Project Acronym <sup>2</sup>		EGDI-Scope	
List of Deliverables - to be submitted for review to EC							
Deliverable Number <sup>#1</sup>	Deliverable Title	WP number <sup>#2</sup>	Lead beneficiary number	Estimated indicative person-months	Nature <sup>#3</sup>	Dissemination level <sup>#4</sup>	Delivery date <sup>#5</sup>
D1.1	Minutes of meetings	1	1	2.60	R	RE	24
D1.2	Internal Progress Reports	1	1	6.00	R	RE	24
D1.3	Overall implementation plan for the EGDl	1	1	6.00	R	PU	24
D2.1	List of stakeholder's and detailed plan for workshop, questionnaire and interviews	2	4	4.00	R	RE	3
D2.2	Report on user needs for datasets and services	2	4	3.25	R	PU	9
D2.3	Report on technical user requirements and use cases	2	4	4.75	R	PU	12
D2.4	Final report of user needs and functional requirements	2	4	2.00	R	PU	18
D3.1	Inventory of previous and ongoing projects	3	3	2.60	R	PU	6
D3.2	Inventory of relevant datasets	3	3	6.60	R	PU	12
D3.3	Implementation plan for datasets	3	3	3.60	R	PU	20
D3.4	technical requirements for serving 3D geological models	3	3	3.60	R	PU	20
D4.1	Report on evaluation of existing	4	2	3.00	R	PU	6

## WT2: List of Deliverables

Deliverable Number <sup>#1</sup>	Deliverable Title	WP number <sup>#2</sup>	Lead beneficiary number	Estimated indicative person-months	Nature <sup>#3</sup>	Dissemination level <sup>#4</sup>	Delivery date <sup>#5</sup>
	interoperable infrastructures						
D4.2	Report on data models, vocabularies, service and portal specifications for the EGDl	4	2	4.60	R	PU	18
D4.3	Report on infrastructure needs	4	2	1.60	R	PU	20
D4.4	Report on recommendations for implementation of the EGDl	4	2	7.00	R	PU	22
D5.1	Report on trust and authentication	5	6	3.00	R	PU	12
D5.2	Report on regulations and policies	5	6	3.00	R	PU	16
D5.3	Report on governance structures	5	6	4.60	R	PU	16
D5.4	Guidelines for the legal and organisational framework	5	6	1.00	R	PU	22
D6.1	Web-based management tool	6	6	1.00	O	PU	1
D6.2	Communication and dissemination strategy and dissemination database	6	6	1.00	R	PU	3
D6.3	Project website (content to be updated throughout the project), "look and feel" and templates	6	6	1.00	O	PU	4
D6.4	Dissemination materials	6	6	6.60	O	PU	12



**Tasks**

- Priority use cases/ datasets
- Building forward on INSPIRE and existing project results
- ...

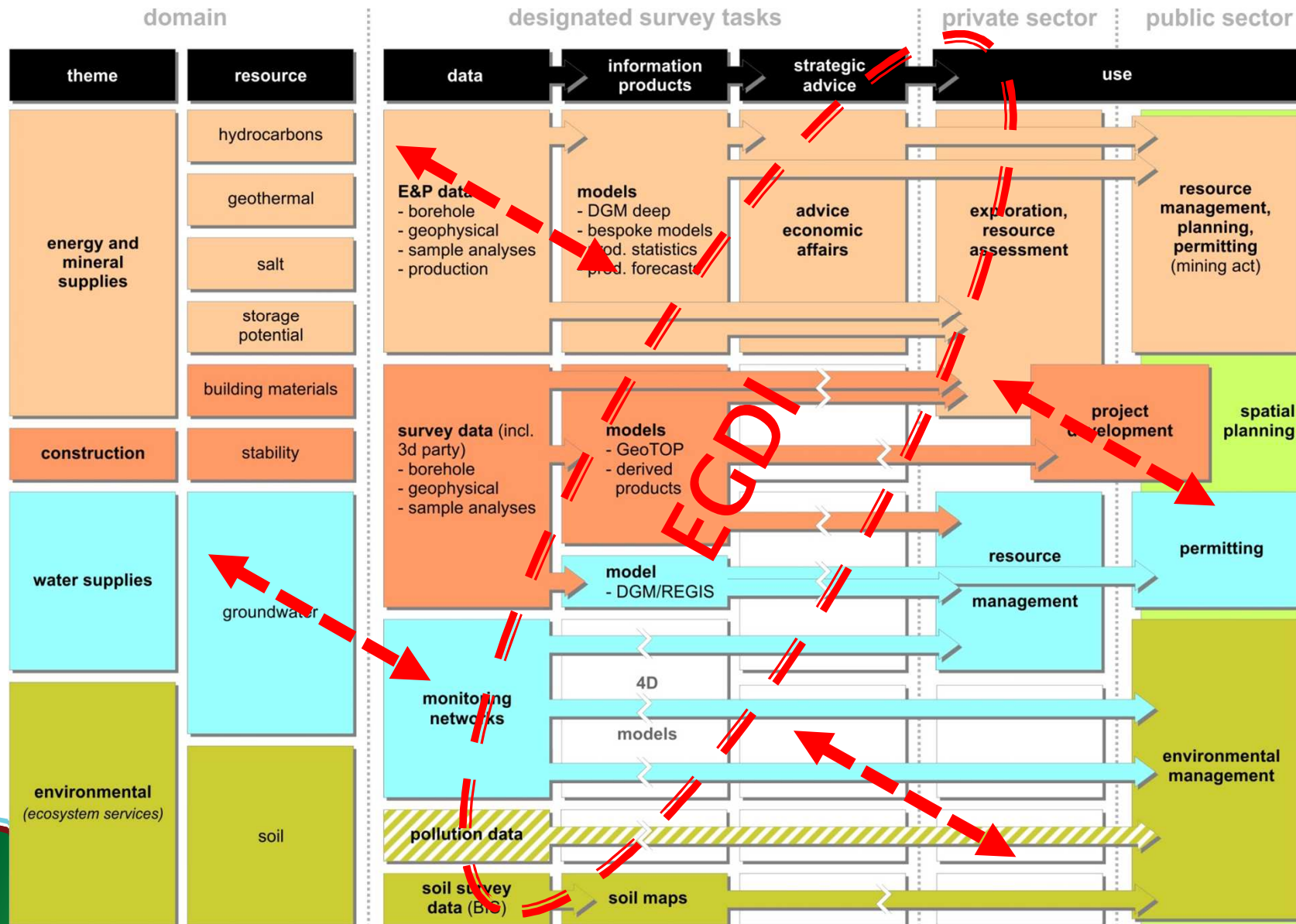
- Data management  
INSPIRE specs/  
standards etc.
- Licenses/ ICT services/  
hardware etc.
- Contact point

- Multiple  
(harmonization)  
projects in multiple  
domains

**DG Connect/ H2020 call Permanent structure**

**Individual Projects**



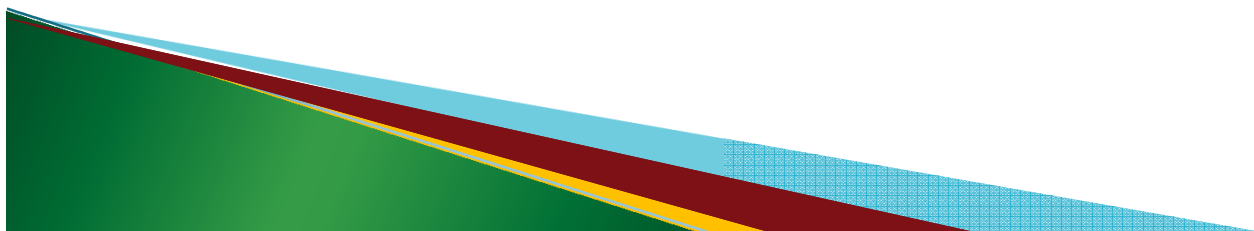


EGDI



## Towards the overall EGDI implementation plan

- ▶ ....
- ▶ Sustainability strategy: EGDI implementation  
→ EGDI Program
- ▶ Research agenda
- ▶ ‘Cooperation’ plan
- ▶ Workplan H2020 Call





## Wider Societal implications?

### EU CHALLENGES REQUIRE EU ANSWERS

- › Zooming in on geological knowledge and data to **support policy development and implementation:**
  - › **Raw Materials** Initiative
  - › Thematic strategy on the prevention and **recycling of waste**
  - › SET Plan (to establish an **energy policy** for Europe)
  - › **Soil** thematic strategy
  - › Blue Growth (maritime/marine)
  - › Water Framework Directive
  - › INSPIRE
  - › etc.

#### EUROPE 2020 Targets:

- Increasing Employment
- Increasing investment in R&D
- Combatting Climate change and Increasing Energy Sustainability
- Better Education
- Fighting Poverty and social exclusion