

The GS SOIL Project

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GS Soil: Assessment and strategic development of INSPIRE compliant Geodata-Services for European Soil Data

- EU-Programme: *eContentplus**
- Funding: 4,1 Mio € (overall budget 5.1 Mio €)
- Duration: 06/2009 – 05/2012 (3 years)
- Coordinator: Coordination Center PortalU (German Environmental Portal)
- Consortium:
 - 34 Partner
 - 18 EU member states
 - 24 soil data providers

* http://ec.europa.eu/information_society/activities/econtentplus/index_en.htm



- **Aim:**

- **Establishment** of an European network to improve the access to INSPIRE related spatial soil data

- **Objectives**

- **specification** of a structure to describe spatial soil data
- **harmonisation** of spatial soil metadata
- seamless combination of spatial soil data (**case studies**)

⇒ bundling of soil data & metadata in central **GS Soil**

Information Portal

Germany

- Coordination Center PortalU at the Lower Saxony Ministry of Environment and Climate Protection (Coordinator)
- Federal Institute for Geosciences and Natural Resources
- con terra GmbH
- Fraunhofer Institute for Computer Graphics Research
- wemove digital solutions GmbH

Austria

- Federal Research and Training Center for Forest, Natural hazards and Landscape
- Umweltbundesamt GmbH
- Austrian Agency for Health and Food Safety
- Paris Lodron University of Salzburg

Belgium

- Vlaamse Overheid

Bulgaria

- Infologica Ltd.
- Institute of Soil Science Nikola Poushkarov

Czech Republic

- Czech Environmental Information Agency
- Masaryk University

Denmark

- University of Aarhus

Spain

- Spanish National Research Council

Finland

- MTT Agrifood Research Finland

France

- Alsace Region

Greece

- Aristotle University of Thessaloniki
- Institute of Geology and Mineral Exploration
- National Agricultural Research Foundation

Hungary

- Central Agricultural Office
- Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences
- Szent Istvan University
- University of Miskolc, Dept. of Physical Geography and Environmental Sciences

Ireland

- Irish Agriculture and Food Development Authority

Poland

- Warsaw University of Technology

Portugal

- EDISOFT s. a.
- National Institute for Biological Recourses

Romania

- National Research and Development, Institute for Soil Science Agricultural Chemistry and Environment

Slovakia

- Soil Science and Conservation Research Institute

Slovenia

- Agricultural Institute of Slovenia

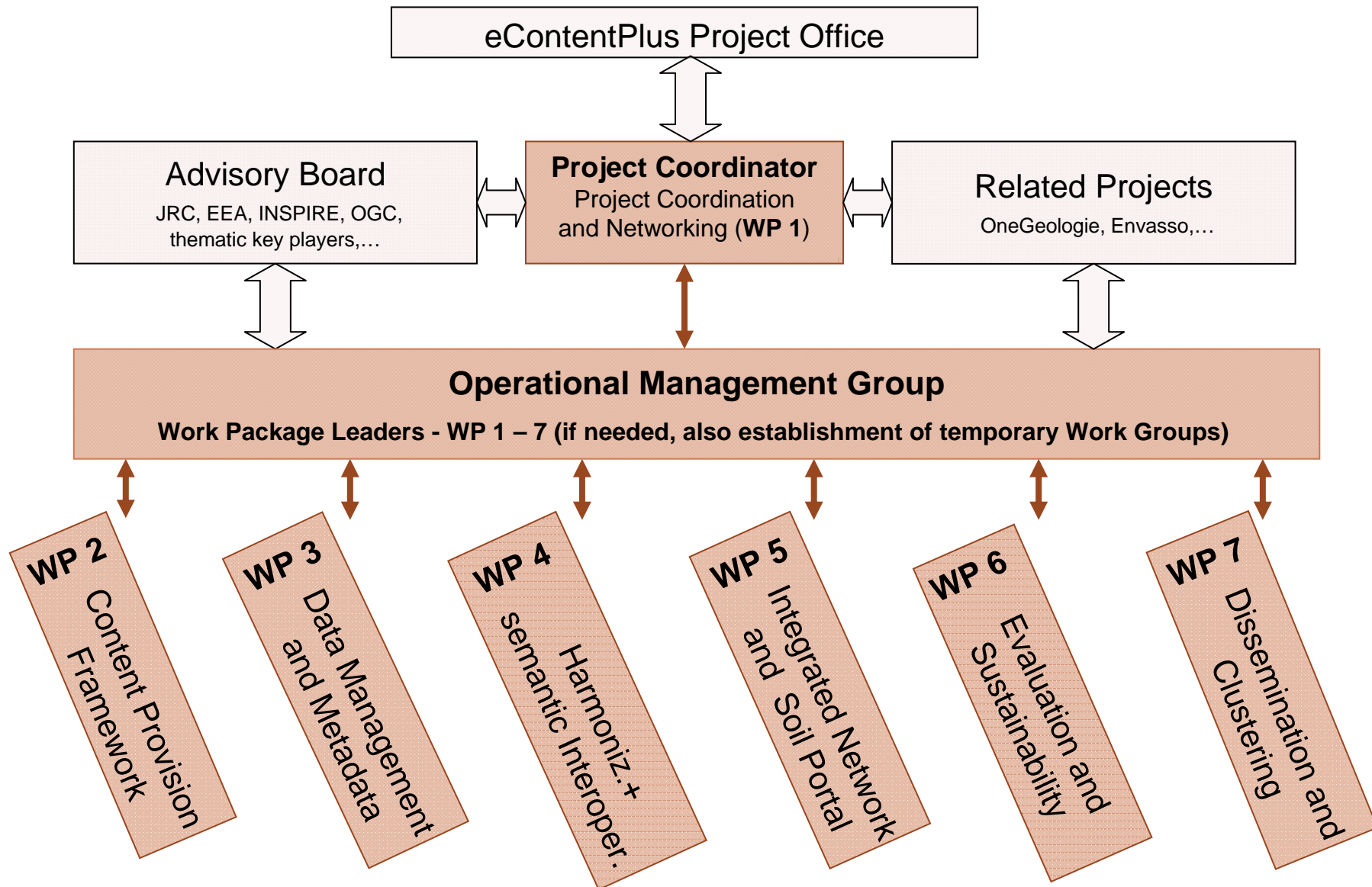
United Kingdom

- Agri-Food & Biosciences Institute
- Macaulay Land Use Research Institute



Nr.	Member state	National data	Regional data
1	AT - Austria	x	x
2	BE - Belgium		x
3	BG - Bulgaria	x	
4	CZ – Czech Republic	x	
5	DE - Germany	x	
6	DK - Denmark	x	
7	ES - Spain	x	
8	FR - France		x
9	FI - Finland	x	
10	EL - Greece	x	x
11	HU - Hungary	x	x
12	IE - Ireland	x	
13	PL - Poland	x	
14	PT - Portugal	x	x
15	RO - Romania	x	
16	SK - Slovakia	x	
17	SI - Slovenia	x	
18	UK –United Kingdom	x	x





D2.3 Consolidation of soils inventory and theme catalogue

Database for soil- and soil-related products

- catalogue with 335 described products
- 19 countries (including some products available for Europe)

D2.4 Content intellectual property rights assessment

- Detailed country reports on national IPR rules: 17 EU countries
- 103 records have been evaluated

D2.5 Definition of content-framework standards (ongoing)

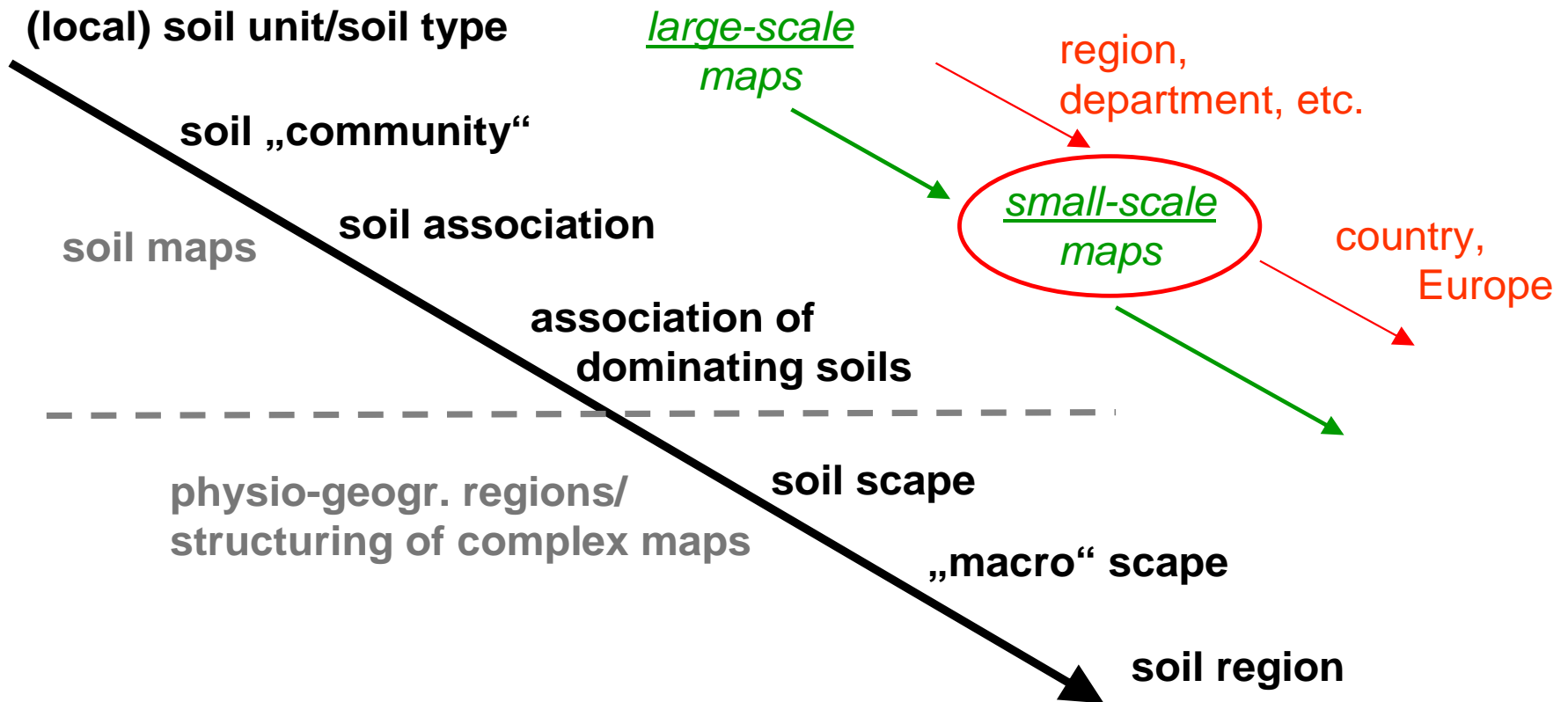
I. Review and analysis of the existing soil content framework

II. Best Practice Guidelines for soil data interoperability

- „e.g. recommendations for content definitions

Example: Rules for the semantic map content

Soil mapping concept: aggregation of soil map (legend) units



- Guidelines to correctly create and maintain metadata
- Specifies dataset-level metadata elements
- Added soil theme-specific metadata elements
- Guidelines on using defined data quality info
- Identification of metadata elements with strictly defined structure and those without (the latter: multilinguality is possible)



2. Mandatory/conditional

1. INSPIRE meta data (1205/2008/EC)

Coordinate reference system

Encoding

Character Encoding

Source title/date

Source date of mapping

Spatial representation type

Topology level

Geometric object type

Data Quality (DQ): Logical consistency

**DQ: Thematic Accuracy –
– Classification Correctness
– Misclassification Rate**

DQ: Completeness – Omission

**DQ: Positional Accuracy –
Absolute or External Accuracy**

3. Optional meta data

Furthermore for services:

- Contains operations
- Service version

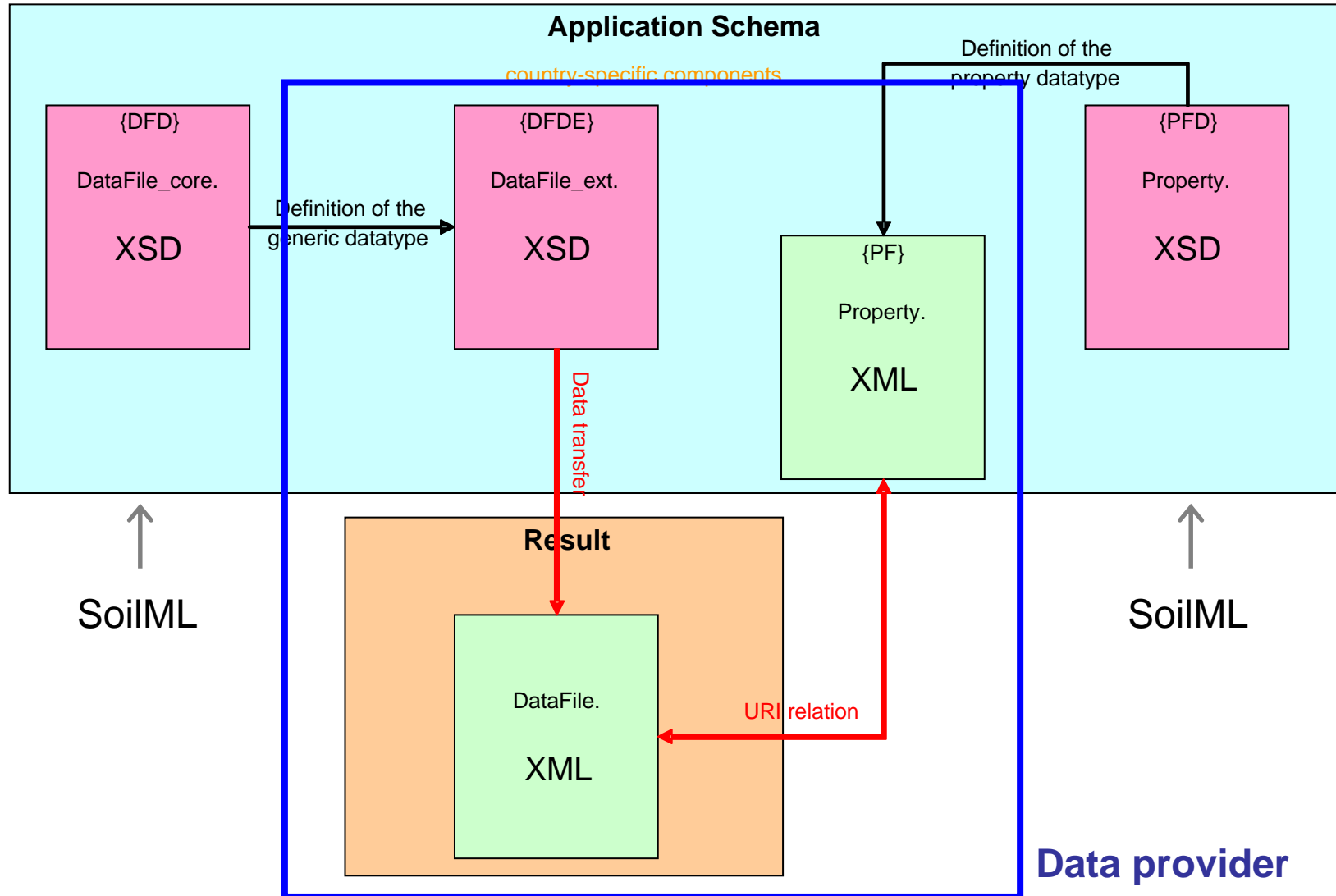
D4.1 Theme specific “test suite” for developing data specifications for spatial soil information

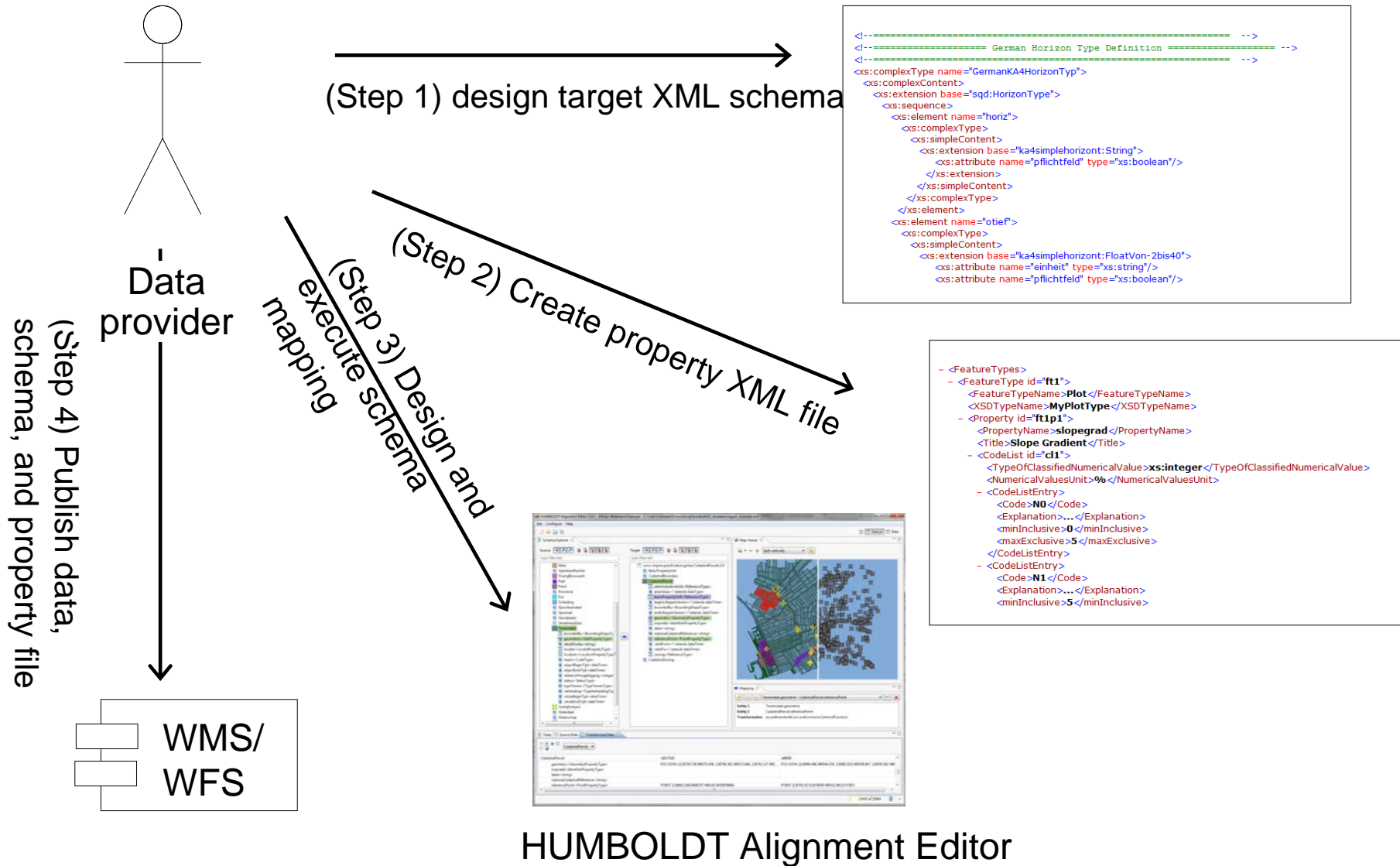
soil mapping 1:250k and related scales	soil mapping at higher resolutions	thematic mapping	soil profiles	soil monitoring	Nomenclature/ classification (WRB)
– Nordic (FI)	– Belgium (BE)	– Belgium (BE)	– Austria (AT)	– Austria (AT)	– various partners
– Balkan (RO, BU, GR)	– Slovenia (SL)	– Germany (DE)	– Slovakia (SK)	– Hungary (HU)	
– UK/IRL/N.-IRL	– Slovakia (SK)	– Slovakia (SK)	– Germany (DE)		
– Germany (DE)/ France (F)	– Hungary (HU)	– Denmark (DK)			
– Austria (AT)/ Slovakia (SK)					

D4.2 Generic application schemas for soil information – design/testing/validation against requirements

- Develop soil UML model (build on SoilML working draft); complete ISO thesaurus and feature catalogue; complete general feature model
- Test applicability of GeoSciML; consider OGC Observations & Measurements
- Test the encoding procedures/feature model; compare the existing data to the „generic model“; improve the model

⇒ GS Soil has strongly supported ISO 28258 (SoilML) to become ISO community draft (Jan 2011)





D4.3 Data Harmonization Best Practice Guidelines

1. Reference terminology → Test cases
2. Soil profile data: minimum soil data set
3. Taxonomic harmonization
4. Harmonization of map content
(and distance measures/indexes to compare geometries)

Maps



Save map

Legend

Active Services

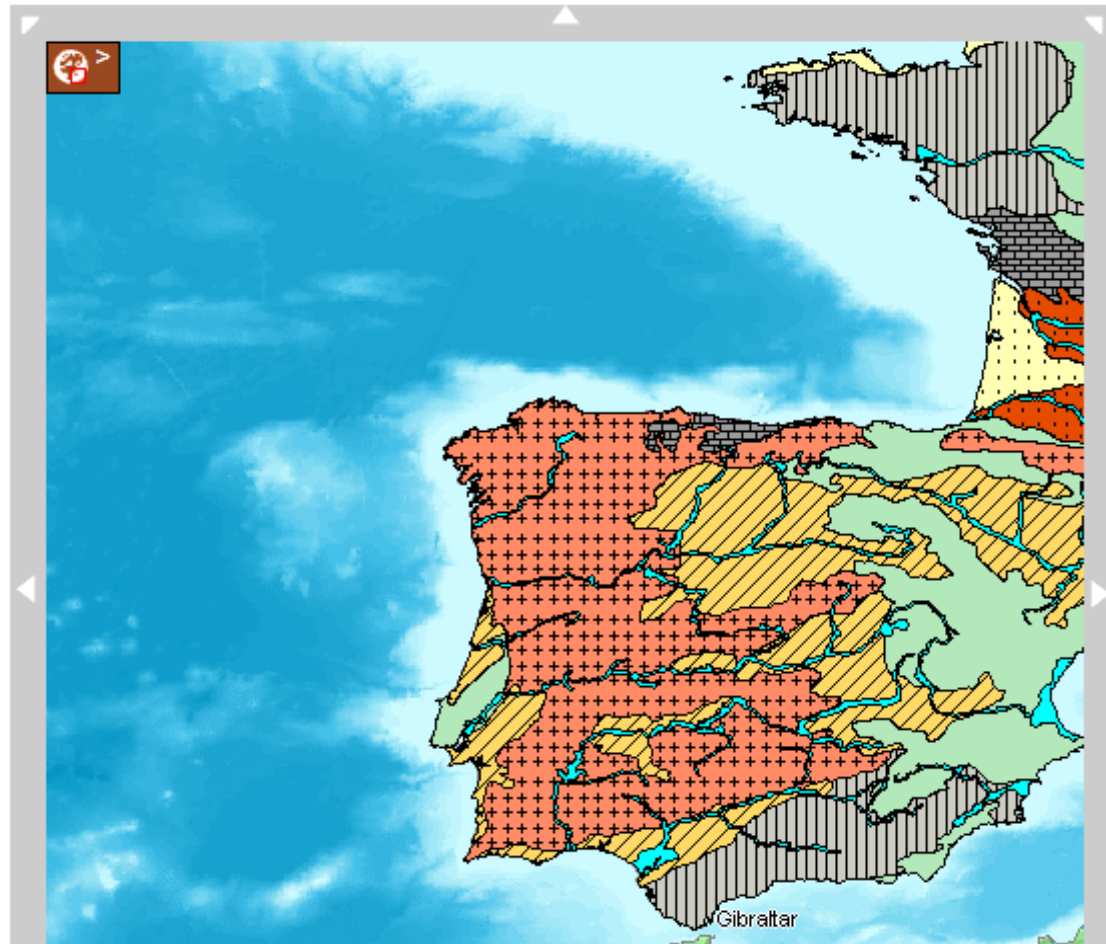
Topics

Partner

WMS services
by data provider



- [-] Czech Republic
 - [+] CZ_climate_regions
 - [+] CZ_geology
 - [+] CZ_geomorphology
 - [+] CZ_soil_map
- [+] Poland
- [-] Portugal
 - [+] PT - Portuguese Soil Data
- [-] Germany
 - [+] BGR Bodenkunde: BOART1000_OB v2.0
 - [+] BGR Bodenkunde: HUMUS1000_OB v2.0
 - [+] BGR Soil: BUEK1000 v1.0
 - [+] BGR Bodenkunde: BGL5000 v2.0
- [-] Greece
 - [+] AUTH/ISAG WMS service
- [-] Belgium
 - [+] Erosion_parcel_100106
 - [+] Erosion_community_100106



Maps



Save map

Legend

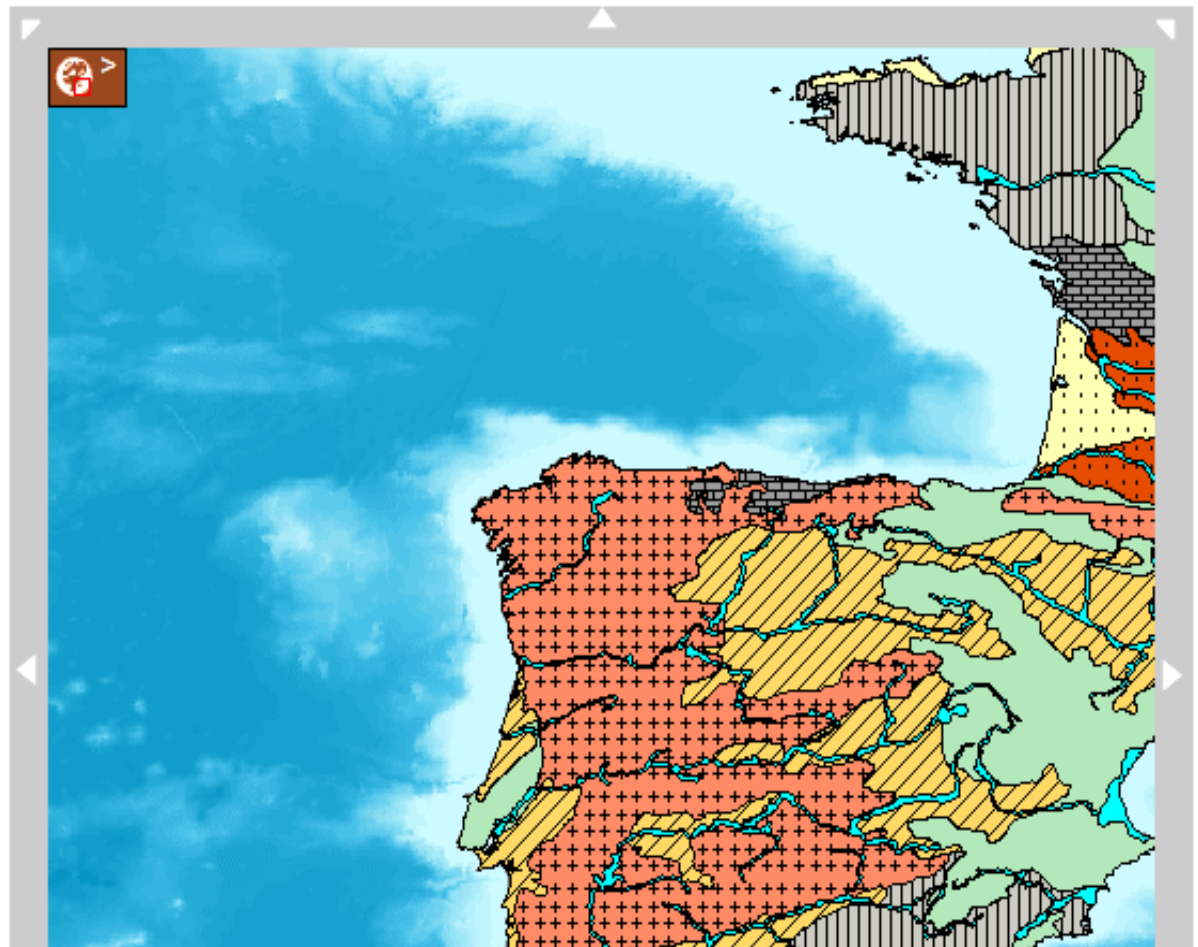
Active Services

Topics

WMS services
by topic



- Physical properties
 - BGR Bodenkunde: BOART1000_OB v2.0
 - BGR Bodenkunde: HUMUS1000_OB v2.0
 - AGROTOPO100k spatial soil information system
- Chemical properties
 - AGROTOPO100k spatial soil information system
- Biological properties
- Geographical covariates / environmental background
- Soil taxonomic classification
 - BGR Soil: BUEK1000 v1.0
 - BGR Bodenkunde: BGL5000 v2.0
 - AGROTOPO100k spatial soil information system
- Soil quality and threats related info
 - AGROTOPO100k spatial soil information system



Development of a (multilingual) soil-specific thesaurus – “SoilThes”



- SoilThes Tasks

Tasks	proposed content
1	GEMET
2	INSPIRE themes
3	ISO11074 – soil vocabulary
4	WRB concepts
5	Concepts out of FAO guidelines
6	AGROVOC
7	Concepts out of USDA field guide for soil description
8/9	Standardized GS Soil Vocabulary
10	Concepts out of soil maps and databases presented on the GS Soil portal
11/12	Concepts of GS Soil metadata and data models
13	Codelists



Project consortium



**Thank you for your attention
and please visit:**

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www.gssoil.eu
 eMail: gssoil@portalu.de



Ministério da Agricultura, do Desenvolvimento Rural e das Pescas | INRB, I.P. Instituto Nacional dos Recursos Biológicos, I.P.