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Learning Material Adaptation Plan
Deliverable n° D.5

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Work Package / Task:

WP2: Analysis and Organisation of Training Material

T2.3: Adaptation Plan

References:

- LINKVIT - Leveraging INspire Knowledge into Vocational Innovative Training

Short Description:

Definition of the guidelines for the adaptation of the learning material. The changes to be made to the existing modules are described from the content as well as the didactic point of view.

Keywords:

Training modules, Metadata, User needs, Curricula, Adaptation plan

Revision History:

Revision	Date	Author(s)	Status	Description
0.1	26/12/2013	Danny Vandenbroucke, Catharina Bamps	Draft	Structure of the document, (ToC), metadata part
0.2	18/02/2014	Danny Vandenbroucke	Draft	Describe the modification according to template. Summary analysis, adaptation modules
1.0	28/02/2014	Danny Vandenbroucke	Working draft	Revise and complete final working draft, concluding the analysis for eliminating gaps and overlaps
1.1	28/05/2014	Danny Vandenbroucke	Revised final draft	Integrated comments by the Steering Committee and the External Expert. Integrated revisions proposed by authors.
1.2	22/07/2014	Danny Vandenbroucke	Revised final draft	Add information on geological modules and integrated comments from Alessandra Marchese. Add information on adaptation of data and metadata harmonization and metadata and data validation. Added the chapter on streamlining. Adding adaptation information for the PLUS modules plus Italian context information
2.0	31/07/2014	Danny Vandenbroucke	Final version	Integrated and consolidated all comments from partners, including additional Italian context information

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1. Introduction

The implementation of the INSPIRE Directive brings a revolution in the management and use of geo-information (GI) in the public sector as well as other sectors in Europe. It generates the need for a new knowledge basis and specific skills for managers and officers in public administration, but also among other GI stakeholders, as acknowledged by the INSPIRE State of Play report (Vandenbroucke et al., 2012)[1]. LINKVIT is in line with the Lisbon strategic priorities to improve quality/quantity of jobs through the impact of ICT. It matches labor market and skills requirements, as described in the EC Communication "*New Skills for New Jobs*" and the priorities of the Copenhagen Process (European Commission, 2009). LINKVIT is built on the results of various GI & INSPIRE European initiatives that obtained among others important training results, not only in the form of training material/modules, but also in the form of new insights and training methods in line with recent technological and non-technological developments. LINKVIT aims to exploit and transfer these achievements to support improved GI skills to a wider audience of national users, and to create operational knowledge to support INSPIRE activities. The modules to transfer are classified into four streams:

1. Context knowledge of INSPIRE;
2. Advanced technical modules;
3. Modules addressing stakeholders of Nature Conservation and Geology & Civil Protection, respectively;
4. Technological trends & innovative solutions;

The modules will be reframed for a user oriented modular learning approach with positive impact on:

- vocational training, for new basic skills about geospatial services or to update/upgrade skills of people already active in the GI field;
- curricular training, for post-graduates quickly operational vs. the needs of INSPIRE implementation.

Specific objectives are to:

- upgrade existing training material, harmonize and adapt it to national/regional needs;
- set-up the best tools (infrastructure, accessible contents) for training initiatives, with guided access for different users;
- exploit all of it for further curricular training actions after the project end, in University Master programs and through the promotion of an INSPIRE driver's license.

Target groups are in a matrix of different possibilities:

- employed people to be re-qualified on new competence required by INSPIRE;

[1] http://inspire.jrc.ec.europa.eu/reports/stateofplay2011/INSPIRE__NSDI_SoP_-_Summary_Report_2011_-_v6.2.pdf

- postgraduates for easier access to the GI-labor market with a post-degree specialization; and
- professional profiles within public and private sector (both technicians and decision makers).

LINKVIT will primarily contribute to rationalize and organize vocational training about GI & INSPIRE in public and private sector, and will facilitate easy access to training material (standardized and validated at EU level). Its goal is to share already existing results with the INSPIRE Community (EU and National level), to enable the development of improved skills and to support the practical implementation of the Directive.

Partners are from administration and environmental agencies, companies (SMEs) and academia. Some of them were partners in previous projects from which the original training contents are derived in order to ensure the mastership of it. In general, apart from their training experience, sustainability is granted by their active and consolidated role in GI and INSPIRE, and thanks to the direct use of the results.

A first phase in the LINKVIT project, *"Training Material Organization Phase"*, relates to the **analysis of the existing material** and the preparation of a Learning Material **Adaptation Plan** (WP2)[2]. The specific objectives of WP2 can be summarized as follows:

1. Analyse the available training material in the light of the identified needs of project beneficiaries.
2. Assessing how to better tune the material to the specific national and sectorial needs, also in terms of methodology and didactic approach.
3. Considering IPR issues, to be fixed with ad-hoc agreements for future exploitation, whenever needed.
4. Definition of optimal learning paths for the target users, and the planning of specific activities, criteria and standards for tailoring the available training material, methodology and infrastructure.

Based on those objectives, the scope of this document is to describe **the adaptation to be made to the existing training material** (Learning Material Adaptation Plan) based on the analysis of the existing training modules and related material, the gaps detected and improvements to be made in order to cover the INSPIRE and national training requirements following optimal learning paths.

The document is organized into 3 chapters, conclusions and annexes. Chapter 2 provides a summary of the results of the analysis of the existing training material described in more detail in "*D4 - Learning Paths Specifications*". Chapter 3 describes the adaptations to be made in different steps including the addition of missing modules, the integration of others, the modifications to be made to the existing material based on a standard template and the final streamlining of the updated versions. Chapter 4 describes some modifications with regard to the format, as well as a time-line for providing the adapted modules, while chapter 5 draws some conclusions. The Annex contains the template with a detailed description of the adaptations.

[2] In the Work Programme this deliverable (D.5) was entitled "Learning Material and Infrastructure Adaptation Plan". Since the adaptation plan for the infrastructure is detailed in D.6 "Infrastructure Technical Specification", this part was not considered in D.5 and the deliverable was renamed "Learning Material Adaptation Plan".

2. Summary of the analysis of existing material

In the LINKVIT report *"D4 - Learning Paths Specifications"* an analysis was made of the existing LINKVIT training modules in view of defining learning paths for different type of stakeholder profiles. The analysis was done based on the harmonized description of the modules according to a metadata template covering the content (abstract), source, ownership, structure, learning outcomes, audience, pre-requisites, language, format and expected work load. Also existing training material was analysed. The analysis revealed some overlaps and gaps regarding the topics and concepts covered by the different training modules which led to the first ideas on where to streamline and adapt the training material. Also the didactic approach, the methods and materials used, were analysed. Most of the modules have already a PPT with audio or a web lecture as part of the training package. Almost all training modules are offered as self-learning modules; while in some cases also face-to-face versions are offered (on demand).

Four basic learning paths were defined based on the analysis of the sub-process of the INSPIRE implementation process: Transforming data and metadata; Creating and managing access mechanisms (services); Access, bind and use of spatial data (through services) and Managing and reporting INSPIRE implementation. For the sake of simplicity, four typical job profiles have been defined to cover the different activities that are part of these processes: INSPIRE Manager, INSPIRE Data Expert, INSPIRE Service Expert and novice users. The basic learning paths revealed that all the modules are used now, while a module on Data & Service sharing is currently lacking and a module on Advanced Linked Data topics should be included as well, in addition to the introduction module on Linked Data.

Based on the analysis performed in D4, a more detailed adaptation plan can be proposed, which is the topic of this report. The major recommendations for this adaptation are provided in chapter 3 of this report.

3. Recommendations for adapting the modules

The adaptation of the existing modules will be done in three steps. The **first step** is to define modules that are missing (curriculum gaps) and those modules that overlap to a large extent with other modules and that should be integrated with each other. The **second step** is to revise the existing modules (that will be retained). This means that they will be updated according to the most important technological and non-technological changes, but also smaller changes will be integrated. The description of the changes to be made is done using a simple adaptation template. The **third step** is the streamlining of the resulting modules. This can best be done when they are revised by focusing on the smaller overlaps (repetition[3]) and the used terminology. The three-step approach is illustrated in figure 1.

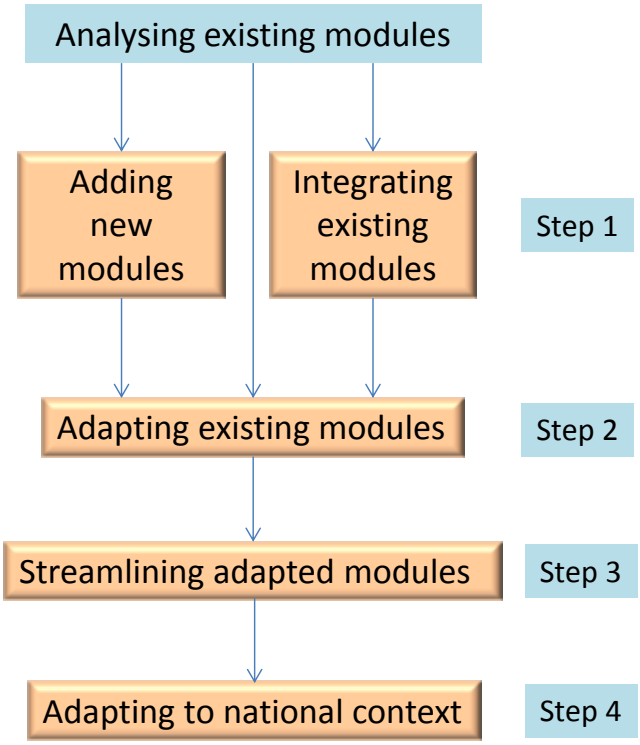

Figure 1: Approach for adapting existing training modules

1.1 Eliminating gaps and overlaps

In this section we describe the major gaps and overlaps. This step is necessary to assure the LINKVIT curriculum for INSPIRE will cover all the aspects (see learning paths), while avoiding to maintain modules that discuss the same topic(s) as is the case for other modules.

[3] Some repetition is not a problem, sometimes even necessary. However, it should be avoided to repeat elements that are treated in more depth in another module (e.g. introducing the INSPIRE Directive).

3.1.1 Filling the gaps

The analysis revealed that two modules are missing to cover the defined learning paths. For the INSPIRE manager profile it is necessary to have a module discussing the data and service sharing concepts which are key to INSPIRE. This module also allows explaining data policy issues and exploring the link with other Directives more explicitly. The second big change is to split the module on Linked Data into an introductory module and an advanced module. The latter would then contain more in-depth hands-on exercises. In the following tables on the next pages we provide the metadata for the new modules.

Table 1: Metadata training module "Basic of INSPIRE Data and Service Sharing"

Module name: Basics of INSPIRE Data and service sharing
Source
This training module has been developed within the context of the smeSpire project in 2013 (http://www.smespire.eu/).
Ownership
Author: Clare Hadley, Ordnance Survey UK. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Abstract
The INSPIRE initiative was initiated by the European Commission in 2001 to enhance the sharing of harmonized spatial data and services between public authorities in order to assist environmental policy-making and activities that may have a direct or indirect impact on the environment. This module pays attention to the European legislation on data access, re-use and sharing namely the Aarhus Directive on public access to environmental information, the Directive on the re-use of Public Sector Information and the requirements (Implementing rule) of the INSPIRE Directive on data and service sharing. The module focuses furthermore on INSPIRE, the Sharing regulation and what data providers have to do to comply, the guidance on the regulation, the framework INSPIRE agreement and the terms and conditions of the basic and specific INSPIRE licence and different examples of good practices. The module also touches the subject of the state of the art in data and service sharing, if the INSPIRE legislation is working, open data, data sharing in a services environment and Digital Rights management, machine readable licences and European projects and initiatives like EULF, ELF, ARE3NA. The training material consists of presentations, supporting documents and a web lecture. The module is a self-learning module.
Structure

This seminar contains the following modules/parts:

1. Setting the scene – data and service sharing in the EU and in the INSPIRE Directive
2. INSPIRE IR on data and service sharing and guidance
3. Practical implementation – Data Provider Perspective
4. Gaps, issues, and 'where do we go from here?'

Learning outcomes

After the training offer, the participant will be able to summarize the context in which the INSPIRE Directive chapter on data and service sharing was drafted; to understand and explain the main elements of the INSPIRE Directive (objective, principles) chapter on Data and Service Sharing; to define and summarize the main requirements of the INSPIRE Regulation harmonising access to data and services; do describe and discuss the state of the art of INSPIRE data and service sharing and exemplify how to report on data-sharing agreements; to describe and discuss the issues relating to the implementation of the legislation by a data provider; to explain how the current legislation and its implementation impacts on third parties and to illustrate and comment on the success of the current legislation in achieving its goals.

Intended Audience

This module aims at professionals seeking to understand the European legislation on data access, re-use and sharing with the main focus on the requirements of the INSPIRE Directive regarding the sharing of data and services.

Pre-requisites

No pre-requisites are required for this module.

Language

English

Format

PDF documents, presentations, Web lecture. The module is a self-learning module.

Expected workload

Expected workload is 4 hours.

Table 2: Metadata training module "Linked Data Advanced"

Module name: Linked Data Advanced
Source
Earlier versions of this training module have been developed within the context of the smeSpire project, 2014 (http://www.smespire.eu/)
Ownership
Authors: Diederik Tirry (SADL), Anders Östman (Novogit), Monica De Martino (CNR-IMATI). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Abstract
Linked Data is a web based approach to publish information in a structured way so that it can be interlinked with other information on the web, and thus become more useful. Rather than using web pages for humans to be read, information is presented in such a way that it can be read automatically by computers. This enables data from different sources to be linked and used together. The collection of Semantic Web technologies (RDF, OWL, SKOS, SPARQL, etc.) provides an environment in which applications can query the data, draw inferences using vocabularies, etc. This seminar introduces the main principles of Linked Data, the underlying technologies and background standards, and how it may be applied in SDI contexts. It provides an overview of how data can be published as linked data (RDF), explains the role of vocabularies and Uniform Resource Identifiers. The module consists of shorter lectures and hands-on exercises. The reading material can be downloaded from the internet in the form of a web lecture.
Structure
1. Introduction to the linked data and metadata lifecycle 2. Publishing linked data: conceptual and implementation level 3. Use of vocabularies 4. URIs and licensing 5. Hands-on: Publishing data using OpenRefine
Learning outcomes
After the training offer, the participant will be able to Identify and describe the basic principles of linked data; apply the guidelines for publishing linked data; understand URI and licensing strategies; understand the use of existing vocabularies and express data in RDF triples and set links to other data sources using

OpenRefine.
Intended Audience
This module aims at (spatial) data experts that need a profound knowledge and understanding of Linked Data, and that need the skills to publish data as linked data.
Pre-requisites
Introduction to Linked Data.
Language
English
Format
PDF documents, presentations, Web lecture. The seminar includes demonstrations. The module is a self-learning module.
Expected workload
6 hours

3.1.2 Merging modules to avoid overlaps

The analysis of the existing training material shows that several modules cover the same topics and concepts, especially those related to data harmonisation and data transformation. We analyse therefore in more detail the related modules in order to come up with a revised / simplified scheme. Table 3 provides an overview of the topics covered by the 5 modules concerned:

Table 3: Topics covered in the 5 training modules related to data harmonisation

Module	Topics covered

Data Harmonisation	• Data modelling
	  ○ Generic Conceptual Model
	• Data conversion
	  ○ Schema translation
	  ○ Schema matching
	  ○ Schema mapping
	• Operations and concepts of harmonisation
	• Transformation tool

INSPIRE Data Specifications Advanced	• Data model and data specification
	  ○ ISO 19100 series
	• UML, GML and XML
	• Data transformation
	  ○ Schema matching
	  ○ Schema mapping
	  ○ Schema transformation
	• Transformation tool

Procedures for Data and Metadata Harmonisation	• Data models and data specifications
	• Data transformation
	  ○ Matching tables
	  ○ Schema mapping
	• Data validation
	  ○ Data and metadata compliancy
	• Transformation tools (comparison)

Examples of Data Transformation	• Data models and data specifications
	• Data transformation
	  ○ Matching tables
	  ○ Schema transformation
	• Data validation
	• GML encoding
	• Transformation tools

Geological Data Harmonization	• Data specifications on Geology • Data transformation and data mapping ○ Wrapper for transforming data via web services • CGI vocabularies and GeoSciML

As can be derived from table 3, the 5 existing modules on data harmonisation treat the same topics and concepts. The last one, *"Geological Data Harmonization"*, is very specific, focussing on the theme geology and extending general principles on data harmonisation and transformation to this particular field (e.g. discussing specific languages such as GeoSciML). Therefore it is proposed to keep that module 'as is' (with some changes to be made to reflect recent changes in the field).

On the other hand, it is proposed to drop the second module, *"INSPIRE Data Specifications Advanced"*, because it matches for 80% with the module *"Data Harmonisation"*. Also the title was somewhat misleading. The other two modules, *"Procedures for Data and Metadata Harmonisation"* and *"Examples of Data Transformation"* also overlap to some extent with the module on *"Data Harmonisation"*. However, they are kept in their current structure since they are relatively new and could be seen as supporting modules for the core module *"Data Harmonisation",* with more detailed examples..

A dedicated working group on 'data harmonization' will prepare the integration and streamlining of the modules related to data harmonisation / transformation, both in the context knowledge for INSPIRE and as advanced technical modules.

1.2 Revisions proposed by authors

The partners of the LINKVIT consortium were asked to describe the modifications they intend to implement based on a revision of the content and compare it with developments with regard to INSPIRE legislation (e.g. new or revised Implementing Rules) and guidelines, but also in order to reflect other technological and non-technological developments (e.g. new international standards, new legal initiatives such as the revision of the PSI Directive). This consultation round resulted in the decision to keep 4 modules as they are, while 16 modules need (considerable) revision. As described above one of those will be integrated in another module and therefore disappear from the list of modules. Moreover, 2 new modules will be added as explained in section 3.1.

3.2.1 Recent modules with no revisions required

Several modules are relatively new (e.g. developed in the context of the smeSpire project) or were revised recently and are therefore up to date with regard to the recent technological and non-technological developments. Table 4 provides an overview of the modules concerned and the reason for not revising them in the context of the LINKVIT project.

Table 4: Modules not to be adapted

Module	Reason for not adapting the module	Update
European Geospatial Portals as SDI User Interfaces	Revised in view of the UNIGIS training offer, University of Salzburg	Spring 2014
Procedures for Data and Metadata Harmonisation	New course in the context of the smeSpire project (http://www.smespire.eu)	Spring 2014
Metadata and Data Validation for INSPIRE	New course in the context of the smeSpire project (http://www.smespire.eu)	Spring 2014

Metadata and Catalogue Services	Revised in view of the UNIGIS training offer, University of Salzburg	Spring 2014

As explained before, the modules related to data harmonisation, i.e. *"Procedures for data and metadata harmonisation"* and *"Examples of Data Transformation"* might be integrated in the model "Data Harmonisation" throughout the adaptation process. All the modules – also those that will not be adapted - will be screened in view of the streamlining process (see section 3.3).

3.2.2 Older modules requiring revision

Some of the modules are the result of previous European projects or training initiatives. Some of them are relatively old and therefore need to be revised, at least partially. Table 5 provides an overview of the 15 modules and how they will be revised. For more details on the revision of each module, see annex 1.

Table 5: Modules to be adapted

Modules	Major changes
Data Harmonisation	• More up-to-date examples of data harmonisation issues • Updates on the sections related to the INSPIRE Conceptual Model and Humboldt references • Integration of material from more recent data harmonisation modules • Writing of normative answers for the (updated) exercises
Data Quality	• New standards on quality needs to be considered (ISO 19157 and ISO 19158) • Lecture 3 regarding data quality definition must be updated with more recent examples and results from research
Basics of INSPIRE Data Specifications	• To be decided how reference will be made to UML/XML/GML • Remove parts that treat data transformation issues, focus on data specification development • Add examples of data product descriptions of well-known products such as EuroRegionalMap
Basics of INSPIRE Network Services	• Remove parts that treat the geoportal • The part on the strategy for deploying services should be improved • Decision on whether the CSW part should be included or not • Transformation and invoking services should be referred to • Add part on the difference between network and spatial data services • Add part on chaining and orchestration of service, and of aggregation of services
Introduction to INSPIRE	• The module should focus more on examples illustrating what an SDI/INSPIRE delivers • The part on the Implementing Rules is too detailed • The part on conformity of data and services is too detailed, belongs

Modules	Major changes
	to the module on testing and validation • M&R and other aspects to be simplified / revised
Basic Concepts of XML and GML	• Lecture 2 – examples should be changed to INSPIRE schemas • Use other OSS for the exercises
INSPIRE Data Specifications Advanced	• To be revised completely and integrated within data harmonisation module – module disappears
INSPIRE Network Services Advanced	• Check if relevant versions of the different types of services are treated • Add also WMTS (exercise possible?) • Add part on ATOM feeds • Provide a short overview of other geospatial web services (WCS, WPS)
Advanced INSPIRE	• Shorten the non-technological part • Add a part on technological developments
Examples of Data Transformation	• Update the example in order to better fit one of the mapping steps to the requirements set in the data specification on the INSPIRE theme involved
Nature Conservation and Natura 2000 Network	• Adapt the material to reflect the changed legislation such as new Directive 2009/147/EC and the monitoring under articles 13 and 17 of the Birds and Habitats Directives respectively. • Adapt the material to reflect the 7th Environmental Action Programme and the 2020 objectives
Nature Conservation and INSPIRE	• Revise the module in view of the last versions of the guidelines/data specifications for the 4 INSPIRE themes involved • Revise the module on the new standard data form (SDF)
Risk Management	• New lecture on geo-hazards to be added • Add examples on data transformation related to the Natural Risk Zones INSPIRE data model • Adapt exercises
Geological Data Harmonisation	• Small revisions regarding data harmonization issues • Integration of final version of the geological data model and new GeoSciML • Including additional examples • Revise web services part
Introduction to Linked Data	• Simplify this module to match better with an introduction concept • Add more examples on the use of linked data • Frame the Linked Data development in the context of Web 1.0, 2.0, 3.0 and 4.0
Introduction to Sensor Web Enablement	• Frame Sensor Web with other technological developments

Modules	Major changes
	• Develop part on crowdsourcing, human beings as sensors

As can be seen from table 5, most changes to be implemented are feasible and not too drastic. In most cases there is a need for reference to and explanation of new standards, new technology, new legislation, etc. Also the update of examples and exercises and the addition of more of these will make the current training modules better and more usable. Moreover, some parts needs to be revised to avoid repetition and duplication.

1.3 Streamlining modules

The last step in the adaptation cycle is to streamline the revised training modules. There are two aspects that should be considered. First, even after the modifications performed by the different project partners, there will remain some overlaps / duplications regarding the final content. Second, there might still be some differences in terminology used, sometimes referring to the same concepts, sometimes to different concepts. Therefore one of the partners will take the lead of an editorial team that will screen all the revised material and propose parts to be dropped or revised, and terminology to be modified in order to re-use as much as possible from the different modules and to speak 'the same language'.

3.3.1 Streamlining content

It is difficult at this stage to determine those parts of the course that can be considered (unnecessary) repetition of parts of other modules, but they will certainly exist. In some cases this is not a problem since a certain degree of repetition of concepts is sometimes necessary / useful, while in other cases repetition is not advisable or it might even be annoying: e.g. repeating what the INSPIRE Directive is about in each module is not good; it might be better for a trainee to follow the module that is dedicated to this topic. And in case repetition is acceptable, the same topic should be explained in a similar way in order to avoid confusion for the trainees that follow a learning path consisting of several modules.

Special attention will be paid to streamlining the content on following topics:

1. The introduction to the INSPIRE Directive and its Implementing Rules;
2. The description of the overall architecture – it is advisable though to re-use the same architectural diagram to explain the components treated in a particular module;
3. The explanation on what interoperability is;
4. The introduction to what standardisation bodies are, including the overview of the different bodies involved such as ISO/TC 211, CEN/TC 287 and OGC.

In general terms it is recommended that modules refer to other modules when it comes to 'explaining' certain concepts / topics that are related to the ones that are treated in the module concerned.

It is also recommended but not mandatory that the examples, demos and/or exercises integrated in the different modules are consistent. If possible they should build upon each other, if not, than at least they should be presented in a similar way (recognition).

3.3.2 Streamlining terminology used

Another, even more important aspect of the streamlining stage is the revision of the terminology used, or how reference is made to certain concepts. Table 6 provides a non-exhaustive list of examples of terms used in the context of the INSPIRE training modules. Some are not wrong or contradictory, but might refer to the same concept / topic. In that case it is recommended to use the same term throughout the different modules. In case the term refers to another concept / topic, the term should not be changed, but at least defined (and eventually compared to similar but different terms). An example of the first case are the terms schema translation and schema transformation (the latter is recommended), or reference data and core data. An example of the second is the term network service as opposed to spatial data service, which are two different type of services in the context of INSPIRE.

Table 6: Examples of terminology used in the existing modules that need streamlining

Module	Terms used
INSPIRE Context	INSPIRE Directive, INSPIRE Implementing Rules, INSPIRE Guidelines
	INSPIRE Directive, PSI Directive, Access Directive
	Exchanging data, data and service sharing
	Business cases, use cases Work flows, business processes, work processes
Data perspective	Data harmonisation, data re-engineering, Data transformation, data conversion
	Data model, data specification, data definition
	ETL, Schema translation, schema transformation, schema mapping, schema matching
	Data semantics, data syntax
	Vocabularies, semantics, ontologies
	International standards, ISO 19100 series, OGC standards
	Data Quality, data completeness, data accuracy, data consistency
	Conformity, compliancy, certification Validation, testing Abstract Test Suite, Executable Test Suite
Service perspective	Web services, OWS Network services, spatial data services
	Discovery service, catalogue services Viewing services, web map services Download services, web feature services
	Service aggregation, service chaining, service orchestration
	Metadata for discovery, evaluation and use

Module	Terms used
Portals, metadata and registers	Geo-portals, data clearinghouse, catalogues, catalogue services
	Registers, registries, Authentic registers, reference data, core data

In the final streamlining phase, one of the partners will lead an editorial team (of around 3 persons) that will check the revised training material specifically on the used terminology and propose modifications where necessary.

1.4 Adaptation to the national context

The adaptation of the modules to the national (Italian) context covers two aspects. First, there is the translation of (parts) of the modules in Italian. Second also the content and (eventually) the method need to be adapted as well. In the next two sections we describe this in more detail.

3.4.1 Translation of material

Ideally all the material of the 21 modules should be translated in Italian. However, this is probably not feasible within the time-frame of the LINKVIT project. First of all, the metadata of all the modules will be translated in Italian. Second, for each of the modules it was decided whether it must be (partially) translated or not. Table 7 provides an overview of the modules and the need for translation. The information is based on the description of the required adaptation as defined in the adaptation forms (see annex 6.1, 6.2 and 6.3).

Table 7: Overview of the modules and the planned translation

Modules	Translation
Data Harmonisation	To be translated in Italian (except screenshots/figures)
Data Quality	To be translated in Italian (except screenshots/figures)
Basics of INSPIRE Data Specifications	Very technical module, not to be translated (focus for Member States on data transformation)
Basics of INSPIRE Network Services	To be translated in Italian (except screenshots/figures)
Introduction to INSPIRE	To be translated in Italian
Basic Concepts of XML and GML	Very technical module, not to be translated in Italian (a summary in Italian might be added)
European Geospatial Portals as SDI User Interfaces	To be translated in Italian (except screenshots/figures)
Basics of Data and Service Sharing	To be translated in Italian

Modules	Translation
INSPIRE Network Services Advanced	To be translated in Italian (except screenshots/figures)
Advanced INSPIRE	To be translated in Italian
Procedures for Data and Metadata Harmonisation	To be translated in Italian (except screenshots/figures)
Examples of Data Transformation	To be translated in Italian (except screenshots/figures)
Metadata and Data Validation for INSPIRE	To be translated in Italian (except screenshots/figures)
Metadata and Catalogue Services	To be translated in Italian (except screenshots/figures)
Nature Conservation and Natura 2000 Network	To be translated in Italian (except screenshots/figures)
Nature Conservation and INSPIRE	To be translated in Italian (except screenshots/figures)
Risk Management	To be translated in Italian (except screenshots/figures)
Geological Data Harmonisation	To be translated in Italian (except screenshots/figures)
Introduction to Linked Data	To be translated in Italian (except screenshots/figures)
Linked Data Advanced	Very technical module, not to be translated
Introduction to Sensor Web Enablement	To be translated in Italian (except screenshots/figures)

3.4.2 Adaptation of the content to the national context

LINKVIT will adapt the existing and new modules in English first, keeping in mind to offer a baseline version that can be used at the European level. The material will be delivered in a 'neutral' way. This means that the version will reflect the application of the INSPIRE Directive, the related technologies in a generic way with examples and exercises covering different (thematic sectors in) Member States. It also means that the format of the modules is not referring to a particular project. From these baseline modules several other 'versions' can be generated.

A version reflecting the Italian context will be developed as part of the LINKVIT project. Other versions could also be generated for other countries, regions, as well as for other thematic communities[4].

The adaptation to the national context will imply the duplication of the modules, with the national version (translation) of the metadata and the translation (of parts of) the training material, as well as the necessary modifications to reflect the national context. Table 8 provides an overview of the changes to the Italian context for each of the modules. The most important adaptations to cover the Italian context relate to

[4] For example, in the context of INSPIRE implementation in the Balkan, the IMPULS project has been initiated financed by the Swedish government, that will make use of some of the modules that are currently modified in the context of LINKVIT. Something similar is in preparation for the European Environment Agency.

particular Italian legislation to be covered (e.g. transposed legislation), and examples and exercises to be tailored (e.g. using Italian spatial data sets).

Table 8: Overview of adaptations in each module to reflect the national context

Module	Adaptation to the Italian Context	Legislation	Examples	Exercises
Data Harmonisation	Examples reflecting the Italian context		✓	
Data Quality	Refer to national profiles for standards if applicable		✓	
Basics of INSPIRE Data Specifications	Examples reflecting the Italian context		✓	
Basics of INSPIRE Network Services	Examples reflecting the Italian context		✓	
Introduction to INSPIRE	Information on the transposition of the INSPIRE Directive in Italy Explanation on the role of the regions Examples of SDI implementations in Italy	✓	✓	
Basic Concepts of XML and GML	No real modifications needed to reflect the Italian context			
European Geospatial Portals as SDI User Interfaces	Examples reflecting the Italian context		✓	
Basics of Data and Service Sharing	Information on Italian legislation related to INSPIRE, PSI, Aarhus …	✓	✓	
INSPIRE Network Services Advanced	Examples reflecting the Italian context Exercises reflecting the Italian context		✓	✓
Advanced INSPIRE	Information on relevant Italian legislation related to e-Government Examples reflecting the Italian context	✓	✓	
Procedures for Data and Metadata Harmonisation	Additional content to reflect the Italian legislation related to metadata.	✓	✓	
Examples of Data Transformation	Very limited modifications to reflect the Italian context		✓	
Metadata and Data Validation for INSPIRE	Additional content to reflect the Italian legislation related to metadata.	✓	✓	
Metadata and Catalogue Services	New examples reflecting the Italian context		✓	
Nature Conservation and Natura 2000 Network	Natura 2000 and Italian legislation Guidelines for habitat interpretation	✓	✓	

Module	Adaptation to the Italian Context	Legislation	Examples	Exercises
	Designation procedures for Natura 2000 sites			
Nature Conservation and INSPIRE	Very limited modifications to reflect the Italian context		✓	
Risk Management	Very limited modifications to reflect the Italian context		✓	
Geological Data Harmonisation	Very limited modifications to reflect the Italian context		✓	
Introduction to Linked Data	Specific examples on the transformation of Italian spatial data sets to RDF		✓	
Linked Data Advanced	Specific examples on the transformation of Italian spatial data sets to RDF Specific exercises on the transformation of Italian spatial data sets to RDF		✓	✓
Introduction to Sensor Web Enablement	Very limited modifications to reflect the Italian context		✓	✓

1.5 Adaptation to the method and format

All modules should be revised from the perspective of the didactic approach and the format. The analysis of the methods and materials of the existing modules revealed that all of them are offered as self-learning or e-learning modules. In the following section it is discussed how modules might also be used and offered as face-to-face training. Moreover, the (required) intensity of the training offer is also discussed. Finally we describe how training packages will be delivered and what these contain.

3.5.1 Self-training versus face-to-face training

All modules will be offered as self-training modules. This means that the material will consist of presentations with audio, web lectures or other means that allow trainees to go through the material on their own. Also assignments (exercises) should be thoroughly documented to allow the trainees to work on the exercise(s) and to check whether their solutions are correct. In short, the material should guide the trainees during the learning process. The training platform should also contain the possibility to have interaction with the tutor (e.g. providing feedback on the course, asking questions) although this is not foreseen in the standard setting.

From the analysis of existing training modules it became clear that some modules are also offered as a 'face-to-face' training if there is a specific demand. Some of the partners of the consortium also foresee to offer a series of modules as a consistent training programme with trainees attending in person[5]. In those cases there is of course intensive interaction between the tutor and the trainees. Especially for the more difficult modules such as data harmonization, this might be beneficial.

3.5.2 Intensity of training

The intensity of the training is related to the estimated work load for the different training modules that form a learning path. For example, the current training path requires an INSPIRE data expert to follow at least 7 modules with an estimated work load of 47 hours. The INSPIRE service expert is expected to follow 5 modules for a total of minimum 41 hours, while an INSPIRE Manager should follow 6 modules for a total of 23 hours. However, these are not hard numbers. The seminar type of modules in which an introduction is given to one or more topics are probably estimated correctly. On the other hand, the more advanced modules in which the trainees also get some hands-on exercises are probably underestimated. The current figures reflect rather the minimum time needed to get acquainted with the topic. But trainees need usually more time to perform more exercises, to repeat and read additional material, etc. The tutors of the training modules who will also prepare the training material will reflect on this, and where necessary adapt the estimated (minimum and optimal) work load.

3.5.3 Training package

All training modules will consist of packages of training material that might include among others:

- Copies of relevant documents for use in the assignments or as background material;
- One or more presentations, including presentations with audio or web lectures; also
- Where relevant exercises might be illustrated with screen casts;
- Assignments describing the exercise(s).

All modules will be accompanied by a self-test, including a separate document with the solutions of the exercise(s)

[5] For example, KU Leuven will offer in Belgium a full programme in Spring 2015

4. Conclusions

This document aims to describe the method and content of the adaptation plan that will form the basis for preparing new (versions of) training material to support INSPIRE implementation in Italy and other countries of the EU. The adaptation plan is based on the analysis of the existing training material and the definition of the learning paths as described in *"D4 – Learning Paths Specifications"*.

The adaptation plan follows a three-step approach. First new modules are defined based on the gaps observed during the analysis phase. There are two such new modules proposed: *"Basics of Data and Service Sharing"* and *"Linked Data Advanced"*. In addition, some modules that overlap to a large extent will be integrated. This is concerning the modules *"Data Harmonisation"* and *"INSPIRE Data Specifications Advanced"*, at least in an initial phase. In a later stage this might also impact the modules *"Procedures for Data and Metadata harmonisation"* and *"Examples of Data Transformation"*. Because the latter two are relatively new modules, it was decided to keep them as they are. Three other modules that have recently been developed will also not be adapted: *"European Geospatial Portals as SDI User Interfaces"*, *"Metadata and Data Validation for INSPIRE"* and *"Metadata and Catalogue Services"*.

Secondly, 15 modules were identified that need important modifications to bring them in line with new technological (e.g. new international standards) and non-technological (e.g. changes in legislation) developments. The analysis shows that most changes are not too drastic and feasible within the context of the LINKVIT project. Besides the above mentioned reasons for updating, the aim is also to revise existing examples and exercises to make the modules tailored to the local needs.

The third step in the adaptation process is equally important. When the modules have been modified by the different project partners, one of the partners will take the lead of an editorial team that will screen all the revised modules and streamlining their content (avoiding too much repetition of parts of each other modules) as well as the terminology used (defining similar terms for different concepts, and applying the same terms for the same concepts). A first list of terms to be checked has been elaborated as part of this report.

As a last step is the adaptation to the national context is also very important in order to offer an effective training package tailored to the national needs. This step would ideally be taken after the streamlining of all the modules, but preparatory work can already start at an earlier stage. LINKVIT will consider the Italian context, which will be a model to be applied also in other national contexts.

Finally, the report also lists how the method and formats will be adapted in order to come up with standard training packages for each module.

5. References

European Commission (2009) New Skills for New Jobs: Anticipating and matching labour market and skills needs. Directorate-General for Employment, Social Affairs and Equal Opportunities, Unit D.2 and Directorate-General for Education and Culture: Brussels, Belgium.
http://www.dges.mctes.pt/NR/rdonlyres/955D4EFD-5E99-409F-868B-1A78993C6033/3671/new_skills.pdf

Vandenbroucke, D., Bamps, C., Östman, A., Markus, B. and Saio, G. (2014). D4 – Learning Path Specifications. A LINKVIT report as part of WP2 activities.

Vandenbroucke, D., Crompvoets, J., Janssen, K. and Bamps, C. (2012) Spatial Data Infrastructures in Europe: State of play spring 2011 - D4.2 - Summary report regarding the results of the European Assessment of 34 NSDI. KU Leuven: Leuven, Belgium.
http://inspire.ec.europa.eu/index.cfm/pageid/6/list/4

6. Annexes

4.1 Adaptation of existing modules

Module name: Data Harmonisation
Source
Earlier versions of this training module have been developed within EuroSDR Educational Services (EduServ) (http://www.eurosdr.net) and the Humboldt project (http://www.esdi-humboldt.eu).
Ownership
Author: Anders Östman, Novogit AB. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
The module describes the basic concepts of data harmonisation with respect to data modelling and data conversion. Special attention is paid to schema translations and the data harmonisation components according to the INSPIRE Generic Conceptual Model. The introduction lecture can be improved by giving more up-to date examples of data harmonisation issues. In addition, the sections making reference to Humboldt and the INSPIRE conceptual model should be updated or removed. Lecture 2 describes the basic operations and it is more or less stable. Perhaps live examples can be given instead of principal sketches, if such live examples are available. Lecture 3 deals with schema transformation. It is currently focusing on Altova Map Force for schema mapping. The exercises will be changed and use the Open Source tool HALE for performing the transformations. It may be updated by using material from the EuroSDR workshop in France. The updates of the exercises are required. However, normative answers need to be written, in case of self-learning studies.
Time schedule for the contents adaptation
The adaptation of this module will follow the time schedule of the WP3 “Adaptation of contents and infrastructures” that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation
The course covers the basic operations of data harmonization with special attention to schema matching and mapping. The current exercises are based on Altova Map Force, which is a commercial product, but a change to HALE is currently being considered. The examples are based on Swedish data. However, examples reflecting the Italian Context might be envisaged. The translation into Italian will be done for all the PPTs of the module, except screenshots/figures.

Module name: Data Quality
Source
An earlier version of this training module has been developed within the GI-INDEED project (http://www.gisig.it/gi-indeed/).
Ownership
Author: Anders Östman, Novogit AB. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
The module describes the basic concepts of geospatial data quality and how the concepts are applied for specifying geospatial data quality according to international standards. The module also provides hand-on experience on procedures for estimation of data quality elements and how they are to be specified using metadata standards. The module is based on ISO 19913 (Quality principles), 19114 (Quality evaluation procedures) and 19138 (Data Quality Measures). The new ISO standards on data quality must be considered in the revision, for instance ISO 19157 (revision of 19913, 19914 and 19138) and ISO 19158 (Quality assurance of data supply). Lecture 1 deals with basic concepts (quality parameters, ISO model). It is OK. Lecture 2 deals with quality assessment and sampling. It is also OK. Lecture 3 deals with specifying data quality. The problem is discussed mainly based on research articles. Should be updated with more recent research and practical examples. Exercise 1 deals with quality assessment using excel and VBA programming. Exercise 2 deals with selection of metadata elements. It is OK. Voice has to be added on all lectures.
Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 “Adaptation of contents and infrastructures” that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation

The translation into Italian will be done for all the PPTs of the module, except screenshots/figures. This module explains the concepts of the ISO standards 19157 and 19158. In addition, examples of how to specify data quality elements are given. It should be checked if specific Italian profiles exist. If so, then these should be integrated in the Italian version of the module.

Module name: Basics of INSPIRE Data Specifications

Source

Earlier versions of this training module have been developed within the context of the EnviSDI Summer School on SDI for environmental datasets in 2010 and 2011.

Ownership

Author: Diederik Tirry, KU Leuven. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).

Reasons for updating the module

This module discusses the scope and objectives of the INSPIRE data specifications. The module discusses the generic conceptual model which is based on the ISO 19100 series of standards in detail and provides examples of UML class diagrams for some of the INSPIRE data themes. The different types of metadata for spatial data sets are discussed as well as the general rules for transforming existing data sets into INSPIRE conformant data sets.

Add part (intro/summary) on UML modelling (?). To be checked and decided. A summary of UML/XML/GML might be appropriate, but inclusion of the module on UML, XML and GML might be more appropriate.

Focus of the module will be on the methodology for applying the ISO 19100 series of standards (leading to how data product specifications are defined). Limit data transformation issues to a summary since that is more part of the data harmonization module.

Illustrate data specifications, add examples of well-known products, e.g. EuroRegionalMap

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 “Adaptation of contents and infrastructures” that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation

The module is focusing very much on the application of the ISO 19100 series of standards and the examples are ‘European’. In that sense, the module is also understandable and applicable in the Italian context. Instead of the example of the EuroRegionalMap, an example of an Italian spatial data product could be used to illustrate the data specification development. The translation into Italian will not be needed.

Module name: Basics of INSPIRE Network Services

Source

Earlier versions of this training module have been developed within the context of the KU Leuven Summer Schools, 2010-2011-2012 (KOI-VLIR) and the smeSpire project, 2014 (http://www.smespire.eu/).

Ownership

Reasons for updating the module

The module introduces the concepts of the World Wide Web (WWW) and of a Service Oriented Architecture (SOA). It describes and illustrates the 5 types of INSPIRE network services (discovery, view, download, transformation and invoking). It explains the link to existing standards of ISO and OGC (e.g. CSW, WMS and WFS) and also discusses the INSPIRE implementing rules that are applicable including conformity aspects.

Certain topics should not be covered by this module, e.g. the part on the development of a geoportal. On the other hand, the ‘strategy’ for deployment should be better developed also the CSW part is underdeveloped. Question is whether this should be part of this module, or rather one module on geoportal, catalogue and CSW? Currently nothing is developed regarding transformation and invoking services. Other issues: add summary on difference network and spatial data services; add a part on orchestration of services

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation

The module provides an overview of the WWW and SOA based architecture. The examples provided are European. In that sense it is understandable and applicable for the Italian context. However, it is recommended to include at least one or two examples of Italian WMS, WFS or other web services.

Module name: Introduction to INSPIRE

Source

Earlier versions of this training module have been developed within the VESTA-GIS project in 2009 (http://www.vesta-gis.eu/), the Nature-SDI*Plus* project in 2010 (http://www.nature-sdi.eu/) and within the Educational Services Programme (EduServ) of EuroSDR in 2010 and 2011 (http://www.eurosdr.net).

Ownership

Reasons for updating the module

This module deals with the main elements of the INSPIRE Directive: its context and background, the scope and major chapters of the Directive, an overview of the related implementing rules, the conformity of spatial data and services, and the potential for new innovative solutions based on INSPIRE. The module also pays attention to the relationship between INSPIRE and other Directives such as the Directive 2003/98/EC on the re-use of public sector information (PSI) and Directive 2003/4/EC on public access to environmental information.

The module should focus more on examples of the use of the infrastructure. This might include demo's using services in an application (e.g. Q-GIS).

The part on the implementing rules is too detailed; the part on conformity of data and services is too detailed.

Part on M&R should maybe be integrated in a module on management of the INSPIRE process.

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 “Adaptation of contents and infrastructures” that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation

The Directive and Implementing Rules are valid for all European countries. But the transposition of the Directive is specific for each country. Therefore, there is a need to add information on how the INSPIRE Directive was transposed into national legislation. This is to be done for the Italian context. In Italy the role of the sub-national level (the regions) is important and should be reflected in the module. It should also be verified if there is other specific legislation relevant in the context of INSPIRE that is specific for the national implementation. The proposed examples of services/portals (limited) should also focus on the national context.

Module name: Basic Concepts of XML and GML

Source

This training material have been developed within the EuroSDR Educational Services (EduServ) (http://www.eurosdr.net)

Ownership

Author: Anders Östman, Novogit AB. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).

Reasons for updating the module

The module describes the basic concepts of XML (syntax, schema, XSL and parsers), GML (simple feature elements and spatial reference systems) and UML class diagrams and how they are related to each other. The module also describes how you can apply the concepts on simple but common problems.

Lecture 1 deals with basic concepts of XML and UML. It is OK. Exercise 1 (5 parts) is OK.

Lecture 2 deals with GML (simple features, reference systems etc). Examples should be changed to INSPIRE schemas. Exercise 2 (5 parts). OK

The exercises and examples are based on using Liquid XML studio. There are 30 days licenses for this product. Switching to open source (free) solutions should be investigated.

Snowflake GML viewer is also used in part 2. Alternatives should be investigated.

Time schedule for the contents adaptation
The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.
Adaptation to the national Italian context/translation
The module explains the basic concepts of XML, UML class diagrams and GML. There is also no need to tailor the module to the Italian context, nor the translation (except a summary).

Module name: INSPIRE Data Specifications Advanced
Source
Earlier versions of this training module have been developed within the context of EuroSDR Educational Services (EduServ) in 2009 (http://www.eurosdr.net), the Humboldt project (http://www.esdi-humboldt.eu) in 2010 and the EnviSDI Summer School on SDI for environmental datasets in 2010 and 2011. The module was then revised in the context of the smeSpire project (http://www.smespire.eu/).
Ownership
Author: Diederik Tirry, KU Leuven. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
This module introduces UML and GML in view of analysing examples of UML class diagrams and existing XML schema and of elaborating some simple diagrams and schema by the participants themselves. The module discusses the conceptual and operational aspects of transforming existing spatial data sets to INSPIRE specifications. It focuses on the schema matching, mapping as well as on the transformation itself. Some hands-on exercises on simple data sets provide the participants with some practical experience. The title is somehow delusive: its focus is not on data specification development per se, but rather on transformation of spatial data sets to INSPIRE specifications. **In that sense it should be considered to merge / integrate the module with other modules on the same topic, e.g. the module on data harmonization**, eventually the modules on data transformation. With regard to the transformation, the focus should be on the concepts of the semantic aspects, with some examples/exercises and transformation tools (overview of existing tools to be given). A part on conformity testing is missing

which should be within this module, or which is a separate module. It is also to be checked whether the module is covering enough the metadata aspects (usage metadata of the data specs).

Based on the discussion in the progress meeting in Leuven (February 2014) it was decided to drop this module and fully integrate it with the module on data harmonization.

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation

Not applicable since the module will be dropped

Module name: INSPIRE Network Services Advanced

Source

Earlier versions of this training module have been developed within the context of the KU Leuven Summer Schools, 2010-2011-2012 (KOI-VLIR) and the smeSpire project, 2014 (http://www.smespire.eu/).

Ownership

Authors: Paul Jacxsens, KU Leuven and Anders Östman, Novogit AB. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).

Reasons for updating the module

The module summarizes the implementing rules for network services (module basics of INSPIRE network services) and provides some guidelines based on best practices throughout Europe to set-up a conformant and performant network service. The module provides insight in how to set-up a WMS, a WFS and a CSW, and how you can/must test such services.

The module is covering very well the three major types of network services which are important in the context of INSPIRE: discovery (CSW), viewing (WMS) and download (WFS). The exercises use Geoserver to implement some services using sample data from Burundi. The exercises need revision and use European sample data sets instead. It should be checked if the relevant version(s) are treated. Also, WMTS might be relevant. Currently the module does not discuss / illustrate the ATOM Feed approach. It should be considered to add this since it is one of the methods for downloading allowed by INSPIRE. Also other type of services are not covered: e.g. WCS and WPS. At least mention them and show some

examples.

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 “Adaptation of contents and infrastructures” that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation

The module provides an in-depth discussion and hands-on regarding a SOA-based architecture. The exercises provided are European. In that sense it is understandable and applicable for the Italian context. However, it is recommended to include at least some exercises implementing WMS, WFS … on Italian data sets.

Module name: Advanced INSPIRE

Source

An earlier version of this training module has been developed within the context of the smeSpire project in 2014 (http://www.smespire.eu/).

Ownership

Reasons for updating the module

This module deals with how INSPIRE can become a key enabler in e-Government business processes. It places the INSPIRE initiative in the context of other initiatives and broader technological developments. The module explains INSPIRE potential future developments and its maintenance programme. Examples of the integration of location information in e-Governmental processes are given, with focus on cross-sector and cross-border applications.

The module is now focusing on the non-technological aspects of the integration of geographic information in the context of e-Government processes. The non-technological aspects should be shortened and complemented with an overview of the technological developments module of smeSpire. The module should also contain more examples / demonstrations.

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.

Adaptation to the national Italian context/translation

The integration of location information in e-Government processes is treated in a generic way with several examples at the European level. Specific examples for Italy could be integrated.

Module name: Examples of Data Transformation
Source
Earlier versions of this training module have been developed within the context of the smeSpire project, 2013 (http://www.smespire.eu/).
Ownership
Authors: Giacomo Martirano, Fabio Vinci, Stefania Morrone (EPSILON ITALIA). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/)
Reasons for updating the module
The present version of the module is updated with the current INSPIRE relevant legislation and documentation. However, an update of the example is recommended, in order to better fit one of the mapping steps to the requirements set in the data specification on the INSPIRE theme involved. In particular, test A.1.7 of the Abstract Test Suite of Administrative Unit has properly been taken into account.
Time schedule for the contents adaptation
The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014.
Adaptation to the national Italian context/translation
No need to adapt the module content to the national Italian context. Most of the slides of the current ppt in English will be translated in Italian. Text and figures referring to INSPIRE legislation and documentation will not be translated. Voice will be recorded in Italian.

Module name: Nature Conservation and Natura 2000 Network
Source
Earlier versions of this training module have been developed within the context of Nature-SDIplus Project "Best Practice Network for SDI in nature conservation" (www.nature-sdi.eu) in 2009 and 2010.
Ownership
This training module has been produced by GISIG (www.gisig.eu). The training material in available through an Attribution Non-Commercial Share Alike Creative Commons license (CC BY-NC-SA).
Reasons for updating the module
The objective of the module is to give an overview of the policies relevant to protected site management and biodiversity conservation, at the International and European level. Within the last years, different changes have been done to the EU environmental and nature conservation policies, and the scope of the updating is to adapt the existing material to the new legal framework and to the new standards. In particular, the module has to be adapted due to: - New 2020 Objectives - New standard data forms for reporting on Natura 2000 - New Directive 2009/147/EC on the conservation of wild birds (codified version of Directive 79/409/EEC as amended) - Monitoring under article 17 Habitat Directive (2013) - Monitoring under article 13 Birds Directive (2013) - New lists for habitats and species
Time schedule for the contents adaptation
The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014.
Adaptation to the national Italian context/translation
The translation into Italian will be done only for the summary parts of this module, and in particular the PPTs that summarize the contexts of the whole module. As far as the adaption to the national context is concerned, it will relate with the preparation of a new

component (described only in the Italian version of the metadata) on the implementation of Natura 2000 in Italy, according to the index that follows:

- The Natura 2000 Network in the Italian legislation
- Biogeographical Regions in Italy. Guidelines for habitats interpretation
- SCI and SPA: procedures for definition and their approval and responsibilities at Italian level
- Habitat Directive in Italy - monitoring of the conservation status
- Birds Directive in Italy and the amendment of 2009
- Database of SCI, SPA and SAC in Italy. The Standard Data Form.
- Assessment of implications in Italy and compensation measures

Module name: Nature Conservation and INSPIRE
Source
Earlier versions of this training module have been developed within the context of Nature-SDIplus Project "Best Practice Network for SDI in nature conservation" (www.nature-sdi.eu) in 2009 and 2010.
Ownership
This training module has been produced by GISIG (www.gisig.eu). The training material is available through an Attribution Non-Commercial Share Alike Creative Commons license (CC BY-NC-SA).
Reasons for updating the module
The objective of the module is to provide a comprehensive insight into INSPIRE themes for nature conservation and biodiversity. Within the last years, different changes have been done to the INSPIRE Data Specifications, and in particular, it has been drafted the data specifications for Annex III data themes, to which the NATURE-SDIplus, from where this training module takes its origin, gave its important contribution. So, the adaptation of contents for this module will consist of: 1. Updating of contents with the respect to the latest version 3.1.0 of Data Specifications for Protected Sites (INSPIRE, D2.8.I.9). 2. Integration of contents with respect to Data Specifications for Bio-geographical regions (INSPIRE, D2.8.III.17) version 3.0. 3. Integration of contents with respect to Data Specifications for Habitat and biotopes regions (INSPIRE, D2.8.III.18) version 3.0. 4. Integration of contents with respect to Data Specifications for Species Distribution (INSPIRE, D2.8.III.19) version 3.0.
Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014.

Adaptation to the national Italian context/translation

The translation into Italian will be done only for the summary parts of this module, and in particular the PPTs that summarize the main topics of the whole module. No other translations are sought for this module since it is very technical and grounded on English texts from EU official documentation (INSPIRE Data Specifications for data themes on nature conservation). Anyway, a translation of parts of this module can be done upon specific request from national users.

Module name: Risk Management

Source

Earlier versions of this training module has been developed within the Briseide project (http://www.briseide.eu/) and other activities developed by Geological Survey of Italy in other international projects.

Ownership

Authors: Geological Survey of Italy (ISPRA). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).

Reasons for updating the module

The module describes the Natural Risk general concepts and the Risk Management theoretical background and process, introducing some use case in the field of Risk management.

The introduction lecture is more or less stable, but an interlinked new lecture focusing on geo-hazards could be included. Moreover the module should be aligned to target some examples of data transformation relate to the Natural Risk Zones INSPIRE data model should be provided.

The updates of the parts on geo-hazards and of the exercises are required.

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that started in March 2014 and ends in October/November 2014.

That means that final updated version of this module will be ready by end of November 2014. More

detailed schedule TBD.

Adaptation to the national Italian context/translation

The translation into Italian will be done for all the PPTs of the modules that summarize the main topics. No other translations are sought for parts that are very technical and based on English texts from EU official documentation (INSPIRE Data Specifications for data themes on Natural Risk Zone).

Module name: Geological Data Harmonisation

Source

Earlier versions of this training module has been developed within the OneGeology-Europe project (http://www.ongeology-europe.org) and other activities developed by Geological Survey of Italy and ISPRA.

Ownership

Authors: Carlo Cipolloni and Marco Pantaloni, Geological Survey of Italy (ISPRA). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).

Reasons for updating the module

The module is composed of 4 lectures: two of them describe the use of semantic vocabularies developed by IUGS-CGI and/or the OneGeology-Europe project to harmonize geological map data and to solve cross-border alignment issues. The other two lectures describe the use of GeoSciML and/or the GE INSPIRE data model for mapping geological information and the set-up of web services relate to those data.

The lecture relating to harmonization issues is more or less stable and does not require modification but just a small revision related to the Directive requirements.

The lecture describes the basic concepts of mapping geological data according to the data model; the final version of the data model and the new stable GeoSciML data model require an update of the material to solve possible misalignment with technical implementation guidelines.

The lecture related to the data models should be reworked taking into account the last version of the models and the technical guidelines for implementing and transforming the data. Add a live example.

Lecture 4 describes how to set-up web-services to serve geological data using a wrapper or an online transformation tool. Revision in view of the new technical requirements is needed.

Time schedule for the contents adaptation
The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that started in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014. More detailed schedule TBD.
Adaptation to the national Italian context/translation
The translation into Italian will be done for all the PPTs of the module that summarize the main topics of the whole module. No other translations are sought for parts that are very technical and grounded on English texts from EU official documentation (INSPIRE Data Specifications for data themes on Geology). The external documents will be not translated, but anyway, a translation of parts of these documents can be done upon specific request from national users.

Module name: Introduction to Linked Data
Source
Earlier versions of this training module have been developed within the context of the smeSpire project, 2014 (http://www.smespire.eu/)
Ownership
Authors: Diederik Tirry (SADL), Anders Östman (Novogit), Monica De Martino (CNR-IMATI). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
The main objective of this module is to introduce the main principles of Linked Data, the underlying technologies and background standards, and how it may be applied in SDI contexts. It provides a brief introduction on how data can be published over the Web, how linked data can be consumed, and what are the possible use cases and benefits. Special attention is also given to the different aspects to be considered when implementing Linked Data. Frame the Linked Data developments with other (technological) developments: from Web 1.0, 2.0 to 3.0 and 4.0 (e.g. Internet of Things). In the current version of the module, a lot of detail is given related to URIs, ontologies, … Revise of this part can be simplified. Moreover, more examples of the use and usefulness of Linked Data could be given (good examples can be found in the Geonovum documentation). Also, what is the difference with a SOA based approach?
Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014.

Adaptation to the national Italian context/translation

The module focusses on the concepts and technological approach for Linked Data. It is applicable for any European country. In order to reflect the Italian context, some work has been done. The results of this work could be integrated in the Italian version.

Module name: Introduction to Sensor Web Enablement

Source

Earlier versions of this training module have been developed within the context of the smeSpire project, 2014 (http://www.smespire.eu/) and UNIGIS

Ownership

Reasons for updating the module

This module gives an overview of the world of sensors and of the concepts which are behind Sensor Web Enablement. It discusses the SensorML and XML based encoding language used to model the geometric, dynamic, and observational characteristics of sensors and sensor systems. The module also treats the various OGC standards needed to implement SWE, such as Sensor Observation Services, Sensor Planning Services, etc. Examples of implementations will be given such as SWE implementation for Air Quality monitoring.

Frame the Linked Data developments with other (technological) developments: from Web 1.0, 2.0 to 3.0 and 4.0 (e.g. Internet of Things). Make also a more explicit link to crowdsourcing, the human being is a sensor (examples of the use of mobile technology). Add the example of air quality monitoring.

Time schedule for the contents adaptation

The adaptation of this module will follow the time schedule of the WP3 "Adaptation of contents and infrastructures" that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014.

Adaptation to the national Italian context/translation
The module focusses on the concepts and technological approach for Sensor Web Enablement. It is applicable for any European country. A specific exercise on the transformation of air quality data at the European level could be added. It should be investigated if similar exercises conducted in the Italian context exist. If so, these examples could be integrated in the Italian version.

4.2 Modules not to be adapted but tailored to Italian context

Module name: European Geospatial Portals as SDI User Interfaces
Source
UNIGIS - www.unigis.net
Ownership
UNIGIS. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
The role of the infrastructure behind a portal is presented in order to help students understand the importance of standards, distributed architectures and data / services documentation. The latter point is given particular emphasis to understand the importance not only of standard metadata, but the critical value of semantic metadata and ontologies. There is no need for updating the content, only for adapting it to match the Italian context.
Time schedule for the contents adaptation
The adaptation according to the national context can start from September onwards.
Adaptation to the national Italian context/translation
Most of the slides of the current ppt in English will be translated in Italian. There are many developments regarding geoportals as well as open data portals for e-Government (national open data initiatives in AT). Even at the local level, there are interesting initiatives on open data such as the “Open Government Wien”. Similar developments in Italy should be considered as well (through examples).

Module name: Procedures for Data and Metadata Harmonisation
Source
Earlier versions of this training module have been developed within the context of the NatureSDIplus project (www.nature-sdi.eu), 2010, and of the smeSpire project, 2014 (http://www.smespire.eu/).
Ownership
Authors: Giacomo Martirano, Fabio Vinci, Stefania Morrone (EPSILON ITALIA). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
The present English version of the module is updated with the current INSPIRE relevant legislation an documentation, therefore does not need any update for the intended audience. However, in order to further support the Italian users of this module to understand also the principles of metadata harmonization according to the relevant Italian legislation, the Italian version of this module should be integrated with few slides presenting the Italian national specifications about metadata, which extend the INSPIRE ones with additional ISO19115 elements.
Time schedule for the contents adaptation
The adaptation of this module will follow the time schedule of the WP3 “Adaptation of contents and infrastructures” that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014.
Adaptation to the national Italian context/translation
Most of the slides of the current ppt in English will be translated in Italian. Text and figures referring to INSPIRE legislation and documentation will not be translated. The additional slides about Italian legislation will be in Italian. Voice will be recorded in Italian.

Module name: Metadata and Data validation for INSPIRE
Source
Earlier versions of this training module have been developed within the context of the smeSpire project, 2014 (http://www.smespire.eu/).
Ownership
Authors: Giacomo Martirano, Fabio Vinci, Stefania Morrone (EPSILON ITALIA). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
The present English version of the module is updated with the current INSPIRE relevant legislation an documentation, therefore does not need any update for the intended audience. However, in order to further support the Italian users of this module to create and validate metadata also according to the relevant Italian legislation, the Italian version of this module should be integrated with few slides presenting a relevant example.
Time schedule for the contents adaptation
The adaptation of this module will follow the time schedule of the WP3 “Adaptation of contents and infrastructures” that starts in March 2014 and ends in November 2014. That means that final updated version of this module will be ready by end of November 2014.
Adaptation to the national Italian context/translation
Most of the slides of the current ppt in English will be translated in Italian. Text and figures referring to screenshots of tools will not be translated. The additional slides about the example of metadata creation and validation according to the Italian legislation will be in Italian. Voice will be recorded in Italian.

Module name: Metadata and Catalogue Services
Source
UNIGIS - www.unigis.net
Ownership
UNIGIS. The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
The catalogue is a central component of the process of information sharing, information dissemination or information awareness (like a library catalogue). It assists users to discover information in a systematic and efficient way. The mechanism to search and discover available geographic datasets and services constitutes a "catalogue service" in the geospatial community. There is no need for updating the content, only for adapting it to match the Italian context.
Time schedule for the contents adaptation
The adaptation according to the national context can start from September onwards.
Adaptation to the national Italian context/translation
Most of the slides of the current ppt in English will be translated in Italian. Many new European catalogues saw light, as well as metadata records grew exponentially. Many new examples in Austria can be given. Similar developments took place in Italy and should be considered as well (through examples).

4.3 Adaptation new modules

Module name: Basics of Data and Service Sharing
Source
Earlier versions of this training module have been developed within the context of the smeSpire project, 2014 (http://www.smespire.eu/)
Ownership
Authors: Clare Hadley (Ordnance Survey), Glenn Vancauwenberghe (SADL). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
This module pays attention to the European legislation on data access, re-use and sharing namely the Aarhus Directive on public access to environmental information, the Directive on the re-use of Public Sector Information and the requirements (Implementing rule) of the INSPIRE Directive on data and service sharing. The module focuses furthermore on INSPIRE, the Sharing regulation and what data providers have to do to comply, the guidance on the regulation, the framework INSPIRE agreement and the terms and conditions of the basic and specific INSPIRE licence and different examples of good practices. There is no need for updating the content, only for adapting it to match the Italian context.
Time schedule for the contents adaptation
The adaptation according to the national context can start from October onwards.
Adaptation to the national Italian context/translation
Most of the slides of the current ppt in English will be translated in Italian. The different Directives haven been transposed and implemented in different ways. Therefore, the module should be tailored to reflect this national legislation (and policies). This is the case for the Italian Context. The entire ppt should be translated since the concepts of sharing, access and re-use are key to understand INSPIRE.

Module name: Linked Data Advanced
Source
Earlier versions of this training module have been developed within the context of the smeSpire project, 2014 (http://www.smespire.eu/)
Ownership
Authors: Diederik Tirry (SADL), Anders Östman (Novogit). The material is provided under Creative Commons Attribution Share-Alike License (http://creativecommons.org/licenses/by-sa/3.0/).
Reasons for updating the module
This seminar introduces the main principles of Linked Data, the underlying technologies and background standards, and how it may be applied in SDI contexts. It provides an overview of how data can be published as linked data (RDF), explains the role of vocabularies and Uniform Resource Identifiers. The module consists of shorter lectures and hands-on exercises. The module has been developed recently. It currently focuses on the creation of linked data, so it should be extended with examples on how to use or 'consume' linked data. There is also a need for adapting it to match the Italian context.
Time schedule for the contents adaptation
The work to adapt the module will start in November 2014 and is foreseen to be terminated in January 2015.
Adaptation to the national Italian context/translation
Most of the slides of the current ppt in English will be translated in Italian. The module focusses on the methods to transform spatial data sets to Linked Data format. It is applicable for any European country. For Italy specific exercises of transformation of Italian spatial data sets to RDF could be given. The results of this work could be integrated in the Italian version with an exercise on Italian data.