



# Third Quality Management Report

## QMR3

Deliverable no. D13.3  
V2.0

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### Work Package / Task:

WP5 Quality Management

Task 5.2

### References:

Project Handbook (D1), Interim progress report (D2), Learning materials and infrastructure adaptation plan (D5), Training framework second release (D11), Training modules (D8), Evaluation questionnaire for training actions (D9), Training sessions and workshops (D10), Quality Management Plan (D12), LINKVIT Web site (D15), Awareness and Dissemination Plan (D14), Dissemination material (D16), Project Newsletters (D17), Awareness and dissemination events (D 18), Exploitation and sustainability Plan (D19), Market analyses, Master proposal, Steering Committee Minutes, EER3 External Evaluation Report

### Short Description:

Quality assessment of single deliverable, clusters of deliverables and related activities according to the procedures defined by D12

### Keywords:

Quality assessment, outcomes, internal and external effectiveness



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# 1. Introduction

The QMR3 is designed according to the Quality Management Plan (QMP - Task 5.1) that provides the 'Quality Assurance' guidelines of WP5. Of the three reports, this latest report assesses the outcomes of the project, stating the tasks that have been achieved while in progress and towards the end of the project. It is focused on the deliverables and activities carried out from March to October 2015. The Report includes the suggestions given during the project network discussion, the Minutes of the Progress Meeting held in Salzburg (June 24-26<sup>th</sup>, 2015), the Minutes of the WebEX Meeting held on October 2<sup>nd</sup> and the External Expert Evaluation report n.3. It also emphasizes the relevance of the main outcomes of the market analyses made in Austria, Italy, Belgium and Sweden aimed at assessing the project's sustainability.

As for QMR2, two types of deliverables are considered herein, i.e. single reports and cluster reports, related documents and/or actions.

**Single reports** include the following deliverables:

1. Learning materials and infrastructure adaptation plan (D5) (Task 2.3)
2. Evaluation questionnaire for training actions (D9) (task 4.1),
3. Training sessions and workshops (D10) (task 4.1)
4. Training framework - second release (D11) (task 4.2)
5. Awareness and Dissemination Plan (D14) (task 6.1)
6. Exploitation and sustainability Plan (D19) (task 6.4)
7. LINKVIT Business Plan (D20) (task T6.4).

The training framework (second release D11) also provides comments on the "Master for Inspire" proposal issued in the IUAV Journal n.146 (University of Venice 2015).

The LINKVIT Business Plan (D20) includes documents on the "Market Analysis", "Business Model" and a "Cooperation of Agreement".

**Cluster** refers to communication devices, media and actions, and includes the following deliverables:

1. LINKVIT Web site (D15) (task 6.2)
2. Dissemination material an events incorporate the following:
  - a. Dissemination material (D16) (task 6.2)
  - b. Awareness and dissemination events (D18) (task 6.3).
3. Project Newsletters (D17) (task 6.2)

Within the cluster, the luav Journal n. 146 (available on line and 1000 printed copies) is considered to all effects as a project activity together with the workshops held at the Inspire-Geospatial World Forum in Lisbon (Portugal) (26-29 May 2015).

The QMR3 Version 0.1 was submitted at the end of October 2015 and discussed during the Final Meeting in Rome (October 21-22d, 2015). All relevant suggestions from the SC and project partners have been assessed and reported (whenever necessary) in this latest issue of the document, Version 0.2. The External Expert Evaluation Report n.3 (EER3) is attached to the present Report and must be considered an integral part of it.

It is worth noting that the LINKVIT Project obtained a one month extension, up to the end of October 2015, by the Leonardo da Vinci Agency. Consequently, the new budget distribution has been updated and approved to carry through all the planned Project activities.

## 2. Quality assessment of deliverables

The quality assessment of each deliverable or cluster of deliverables consists of a brief comment and, if necessary, of templates and recommendations.

### 2.1 Single Reports

#### ***D5 Learning materials and infrastructure adaptation plan (task 2.3)***

The D5 Report documents the analysis of available learning materials and infrastructure. It suggests a multi-step adaptation process to bridge gaps and avoid overlaps among the learning modules, to improve the modules using simple adaptation templates, streamlining the final versions. The Task 2.3 was to be completed by February 2014, but complementary actions followed the QMR2 and the meetings of Venice and Salzburg, related mainly to compilations in developing a Dictionary that is open to the proposals and inputs from project partners and their networks. The "Linkvit Glossary" is now available and has been added as a component ('resource') in all the learning paths using the official INSPIRE Glossary. The INSPIRE Glossary provides general terms and definitions that specify the common terminology used in the INSPIRE Directive and INSPIRE Implementing Rules documents. The Glossary uses Re3gistry as a tool to manage the data contained in the registry.

The Linkvit Glossary was delivered by Novogit AB using the SKOS standard<sup>1</sup>, which however, was regarded too complicated to be fully implemented within the LINKVIT e-LP. Since the project refers to an INSPIRE Glossary which to date is still not available as a triple-store, the SKOS implementation will depend on the expected results from other projects.

<b>internal review</b>	Project Co-ordinator (CO), Steering Committee (SC)
<b>Input</b>	D5 Learning materials and infrastructure adaptation plan (task 2.3) Version 2.0
<b>Method</b>	Review
<b>quality criteria</b>	D5 provides operational guidance for the adaptation of learning materials according to the defined learning paths and the national contexts. This helps to make the learning materials more accessible and provides a useful framework in dealing with the documentation available in the future. Suggestions from QMR2 and from the project partners have been effectively included in D5.
<b>output</b>	During the meeting in Rome, the main monitoring issues on the entire set of learning modules were thoroughly discussed to guarantee the suitability and maintenance of the e-LP. The Glossary was been effectively implemented. Its access during on-line lectures should however

<sup>1</sup> SKOS is an operational domain which develops specifications and standards to support the use of knowledge organization systems (KOS) such as *thesauri*, classification schemes, subject heading systems and taxonomies in the framework of the Semantic Web.

be improved.
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### ***D9 Evaluation questionnaire for training actions (task 4.1)***

The D9 deliverable contains a questionnaire designed to collect the opinion, suggestions and reactions from the target groups involved in training actions dealing with GI. The evaluation form consists of five sections: a) personal information; b) evaluation of the modules related to the training path; c) comments on the use of the e-LP; d) impacts on working activities or University studies; e) specific comments on training materials (optional).

The evaluation questionnaire was designed at the end of 2014 and revised after the Venice meeting including SC and QMR2 suggestions.

Three tests were carried out by the project partners in Belgium, Austria and Italy with students attending different types of course:

1. KU LEUVEN – around 20 students attending the “Spatial Data Infrastructure “course at the Spatial Application Division, University of Leuven. A detailed report mailed to the partners (19 July 2015) illustrates the test results.
2. PLUS – 50 UNIGIS MSc students were invited to test the LINKVIT self-learning modules. The assessment module works in Moodle. The students were asked to use the platform to provide comments on contents and procedures. Unfortunately, only two students registered to the Moodle platform marking “UNIGIS Salzburg” in the "Training Action registration" field. The results of the test were reported to the partners (mail: 9 Sept 2015).
3. IUAV University of Venice – around 50 undergraduate students attending a Laboratory on Urban Planning were invited to test the LINKVIT self-learning modules. Despite the syllabus contents and teachers’ willingness to support the test, the students were not as adequately prepared on GIS Technologies as expected (all of them were first year students). Since the answers were limited in number and very poor, test results were considered unreliable. Anyway, despite the poor feedback of this training action, it had the positive outcome to have addressed undergraduate students, which is considered by Steering Committee, an additional and interesting target.

<b>internal review</b>	Steering Committee (SC)
<b>input</b>	D9 Evaluation questionnaire for training actions (task 4.1) Version 2.0 Three test results
<b>method</b>	Assessment
<b>quality criteria</b>	The tests can be considered as a good opportunity to present the Linkvit project to the University community, involving actual or potential users interested in the training activities. Results provided few inputs to update the learning paths and modules.
<b>output</b>	Although the e-LP target is mainly professionals, it would be interesting to extend the test to a wider audience.

### ***D10 Training sessions and workshops (task 4.1)***

The deliverable D10 contains the reports of the international workshops hosted by the INSPIRE-Geospatial World Forum in Lisbon (25-29 May, 2015) and by the GI-Forum Symposium in Salzburg (8 July, 2015). Papers and proceedings are now available on the LINKVIT web site.

The two workshops were good opportunities to present the LINKVIT project to GI and INSPIRE international communities.

Many attendants expressed their appreciation and interest in following training actions in the near future.

In mid July 2015, at the GI\_Forum Symposium in Salzburg, a special report (Deliverable D18) of the LINKVIT Workshop was distributed among the partners by PLUS with results on customer satisfaction analysis (CSA). The CSA was carried out at the end of the workshop.

<b>internal review</b>	Steering Committee (SC)
<b>input</b>	D10 Training sessions and workshops (task 4.1) Version 2.0
<b>method</b>	Assessment
<b>quality criteria</b>	The workshop was an opportunity to present the LINKVIT project to the International Community.
<b>output</b>	NA

### ***D11 Training Framework - second release (task 4.2)***

Based on the first release of the Training Framework and SC suggestions (both reported in QMR2) a number of web-conferences among the project partners were held to improve module contents and design.

An effective revision took place in September-October 2015 to avoid duplication, facilitate the integration of modules, and to align the meta-data. Great attention went towards designing quality slides for the presentation of lectures. The e-LP presently incorporates an on-line Glossary and a new Adobe Presenter Platform. All the learning modules are easy to be downloaded in pdf and a contact session is also included.

A potentially broader and enhanced e-LP with additional modules from other on-going projects was discussed by the partners.

The table below illustrates the situation updated to now.

It is worth noting that the Linkvit Project includes a complementary action. A preliminary proposal of a European Master on INSPIRE, designed by Domenico Patassini and Vincenzo Giannotti (IUAV). The proposal was published in the IUAV Journal n. 146 revised by Danny Vandenbroucke (KU Leuven). The Master envisages a training path on "Climate vulnerability in European cities" follow-

ing the INSPIRE interoperability principles. A wide partnership among European Universities is one of the main conditions, as advocated by Anders Östman (Novogit AB).

Erasmus+ should be considered as an opportunity to promote the Master at the International level. The procedure to obtain a Driving License was discussed. According to the Austrian Computer Agency (ACA) a Driving License (generally on GIS and not on Inspire) is under the responsibility of each country. After an extensive discussion between Austrian ECDL and Stefan Pruessler (who is the person in charge), new information are submitted:.

### Necessary step:

1. identification of the subject,
2. preparation of a Syllabus / catalogue of learning objectives,
3. definition of the target group (should be several hundred attendees per year),
4. definition of the level of the modules. The ECDL foundation use as a standard categorization the following: Base, Standard and Advanced modules,
5. review by the national operator using criteria of relevance and implementation effectiveness,
6. design and implementation of tests,
7. for international use of the certification: an endorsement of the ECDL foundation would be necessary. After this step the modules (including the ECDL logo) can be taken over by other countries,
8. testing center: There is a European-wide network of testing centers. Due to very specific GI software requirements, the project partners should become certified as testing centers.

	MODULE	ID (1-3)	PQ (1-3)	DO (1-3)	EO (1-3)	ST (1-3)	WS (Y/N)	IT (Y/N)	NOTES
1	Introduction to INSPIRE	3	2	3	2	Y	Y	Y	Significant Improvement
2	European Geospatial Portals as SDI User Interfaces	2	2	2		Y	N	Y	Some Improvement
3	Basics of INSPIRE Data and service sharing	3	3	2		Y	Y	Y	Good Improvement
4	Basic concepts of XML and GML	3	3	3	3	Y	Y	N	Very Good and Complete
5	Basics of INSPIRE Data Specifications	2	2	2		Y	Y	N	Good Improvement
6	Data Quality	3	3	3	3	Y	Y	Y	Very Good and Complete
7	Basics of INSPIRE Network Services	3	2	2		Y	Y	Y	Good Improvement
8	Data Harmonisation	3	2	3	2	Y	Y	Y	Very Good and Complete
9	INSPIRE advanced	2	2	2		Y	N	Y	Some Improvement
10	Metadata and Catalogue Services	3	2	2		Y	Y	Y	Good Improvement
11	INSPIRE Network Services advanced	3	2	2	3	Y	N	N	Some Improvement
12	Procedures for Data and Metadata Harmonization	2	1	2		Y	Y	Y	Good Improvement - presentation still poor in readability
13	Examples of Data Transformation	2	2	2	3	Y	N	Y	Some Improvement - Still
14	Metadata and Data validation for INSPIRE	3	2	3		Y	Y	Y	Good Improvement
15	Nature Conservation and Nature 2000 Network	2	3	1		Y	N	Y	Poor Improvement - Still using old presentation platform
16	Nature Conservation and INSPIRE		3	1		Y	N	Y	Poor Improvement - Still using old presentation platform
17	Risk Management	2	2	2		N	N	Y	Poor Improvement - No Self test annexed
18	Geological data harmonization	3	1	3		N	N	Y	No Improvement - Presentation still poor in readability
20	Introduction to Linked Data	3	2	2		Y	N	Y	Some Improvement
19	Linked Data Advanced	3	3	2	3	Y	N	Y	Some Improvement
21	Introduction to Sensor Web Enablement	2	2	2		Y	N	Y	Some Improvement

The following four parameters are evaluated as: 1=poor, 2=sufficient, 3=good

ID general graphic design of the slide presentation and quality of the imported materials (graphs, figures, maps and alike)

PQ quality of lecture presentation in terms of clarity and readability (disposition of text and images, density, variability of the character size and so forth)

DO completeness and usefulness of the enclosed documentation and links (1=no documentation annexed, 2=downloadable presentation in pdf, 3=various documentation and links)

EO exercises and operational guidance annexed to the presentation (effectiveness, content coverage, progression in learning)

The following three simply highlight the presence or not (Y/N) of self test, sound and Italian translation

ST self-test

WS with sound (sound-text complementarity)

IT translation in Italian (if requested)

This assessment is based on personal evaluation; no objectives criterias were defined. Please keep it as a comment or suggestion.

<b>internal review</b>	Project Coordinator (CO), Steering Committee (SC)
<b>input</b>	D 11 Training Framework, second release (task 4.2)
<b>method</b>	Review
<b>quality criteria</b>	A detailed check of the e-LP platform and contents was performed comparing it to the previous one, performed for the QMR2.
<b>output</b>	A general and substantial improvement of the modules and platform was assessed. A useful glossary is now available. Driving License grant seems conditioned to some difficult obligations, nevertheless it is to be considered a good opportunity.

#### ***D14 Awareness and Dissemination Plan (task 6.1)***

According to the Awareness and Dissemination Plan, the activities planned have been almost completed even though some still need to be implemented after delivery of D14.

#### ***D19 Exploitation and Sustainability Plan (task T6.4)***

The implementation of the Plan is in progress and some of the activities will be implemented after delivery of D19. Reference to the Business Plan (D20, see below) are also included.

#### ***D 20 LINKVIT Business Plan (task T6.4)***

The LINKVIT Business plan is being finalized. It includes documents on “Market Analysis”, “Business Model” and a “Cooperation of Agreement”. As stated before, market surveys have been carried out in Italy, Sweden, Austria and Belgium with reference to a wider situation in Europe.

#### **Market Analysis –**

The Italian Market - an overview of courses organized by public and private organizations has been carried out by EPSIT and published at the beginning of October 2015. For each course the following attributes were specified: course organizer and title, main topics, potential users, prerequisites, fee, duration, and location.

Sweden Market – the report, prepared by Novogit AB and distributed among the partners on October 10th 2015, describes the Swedish market for professional training in GIS and assesses the potential for LINKVIT products within the Swedish environment. It provides an overall list of training courses offered by the Universities, the main software providers, consultants and public authorities.

Austrian Market – the report (dated October 17<sup>th</sup>, 2015) follows the format adopted in Italy whose main focus is the academic market.

Belgium/European Market – The report strives to describe the European market for training and SDI education, and to assess the European potential of LINKVIT e-LP. The document (dated October 18<sup>th</sup>, 2015) identifies the potential training demand. A business model presents an analysis of financial options for LINKVIT's implementation. The KU Leuven training action highlights that LINKVIT e-LP might also be used for academic masters (see report on related training action). It would require designing an *ad-hoc* business model to explore the overall potential of an e-Learning Platform in academic and higher education.

Specific assessment of SDI professional training in Belgium can easily be completed using also the available record of suppliers.

So far, little can be inferred from the results of a market analysis on the actual competitiveness of the Linkvit e-LP. As remarked in the project discussion, the main factors that need to be considered include the appeal, updated training material content, operational devices to assess learning achievements (self-tests, exercises, tutoring) and user-friendly accessibility.

### **Business Model**

A Business Model Template was provided by ISPRA. The Model has been filled out by KU Leuven and then revised and integrated by other partners. The Model includes: value propositions, key partners, activities and resources, customer segments and relationships, channels, revenue stream, and cost structure.

This activity is still in progress.

### **Cooperation of Agreement (CoA)**

The aim of the CoA, developed by GISIG, is to link a sustainable Project Training Framework to the main INSPIRE principles. CoA deals with bilateral agreements between GISIG and the partners.

An initial version of the CoA was delivered to the partners in mid-September 2015 and was discussed in-depth in Rome. The adjustments suggested by ISPRA and Leuven have been accepted, in particular the change of name of the agreement from MoU into 'Cooperation Agreement'.

## ***2.2 Cluster on communication activities***

Communication is an integral part of the project and, as outlined in the QMP, it helps to disseminate INSPIRE Directives, especially in countries that find it difficult to manage GI data. Communication helps to identify new categories of users and to place the e-LP within the full set of platforms in Europe.

D14 (Awareness and Dissemination Plan) is the communication cluster linked to the following deliverables:

- D15 LINKVIT Website (task 6.2);
- D16 Dissemination material (task 6.2);
- D17 Project Newsletters (task 6.2);
- D18 Awareness and dissemination events (task 6.3).

***Linkvit web site (D15), Dissemination material (D16), Project Newsletters (D17), Awareness and dissemination events (D18)***

The four deliverables are considered herein as a unique cluster.

**D15 Linkvit web site ([www.linkvit.eu](http://www.linkvit.eu))**

No substantial changes have been made since the last version of the web site, assessed previously by QMR2.

As already indicated above, the e-LP was completed and improved in terms of web-site architecture.

**D16 Dissemination Material and Events and D18 Awareness and Dissemination Events**

The title "Dissemination Material and Events" covers the following two deliverables:

- D16 Dissemination Material (task 6.2)
- D18 Awareness and Dissemination Events (task 6.3).

Dissemination material was prepared and updated according to the Dissemination Plan and project requirements. Material consists of a multilingual project leaflet, power point presentations and posters. A leaflet was created at the beginning of the project in English and Dutch. Now, the overall list of training modules is available in the following languages: English and Dutch.

Part of the documents and dissemination material were prepared for events and conferences in Italian, German, Dutch and Swedish to complement what was already available at the beginning of the project.

The dissemination material is hosted in the web site under the menu entitled "publications & media":

- LINKVIT at INSPIRE 2014, Aalborg (DK), 16-20 June 2014 – Workshops proceedings;
- LINKVIT at ASITA 2014 National conference - Workshop Proceedings;
- LINKVIT Training Action, Rome (IT), 4 March 2015 - Workshop Proceedings.

An issue of the IUAV Journal (#146) was printed and distributed in many copies, right before the Salzburg meeting. The 12 page, A3 format Journal had approximately 50-80 copies sent to each project partner. A free digital copy can be downloaded from IUAV link: <http://www.iuav.it/Ateneo1/chi-siamo/pubblicazi1/Catalogo-G/>

As previously mentioned, a report of the LINKVIT Workshop at the GI\_Forum Symposium in Salzburg was delivered to the partners by PLUS in mid- August 2015 (Deliverable D18).

**D17 Project Newsletters**

According to D17, four issues of the electronic Newsletters are scheduled: the first was published at the beginning of the project as a general introduction, the others, are scheduled every eight months. The newsletters are addressed to stakeholders and users, following the Awareness and Dissemination Plan.

At the moment, three Newsletters have been issued. The first one (January 2014) features an interview to the Project leader introducing LINKVIT and the WP activity. The second Newsletter (June 2014) focused on the workshop "A clustering approach to environmental services for advanced applications and capacity building within Inspire and SEIS" (INSPIRE Conference in Denmark). The second Newsletter contained three interviews: the first with D. Vandenbroucke on education and training strategy for the INSPIRE Directive implementation; the second with an administrator of the National Mapping Agency (IGM - Italy) and the third with a coordinator of the ARPA

Piedmont (geo-portal and SDI). The second and the third interviews looked at INSPIRE Directive implementation in Italy.

The third Newsletter (April 2015) focused particularly on Training Actions and Workshops organized during 2014.

<b>internal review</b>	Project Coordinator (CO), Steering Committee (SC)
<b>input</b>	Web site (D15), Dissemination material (D16), Project newsletters (D17), Awareness and dissemination events (D18)
<b>method</b>	Review
<b>quality criteria</b>	The deliverables follow the requirements stated by D1 and D16 and they are presented in a simple and clear way.
<b>output</b>	Effective Dissemination Activities have been done.

### 3. Conclusions

In assessing the deliverables available in November 2015, the project has successfully achieved its main objective, which is the production of an INSPIRE e-Learning Framework consisting of a series of 21 e-learning modules and an e-Learning Platform (e-LP). The architecture and contents of the Platform were designed and implemented in line with the strategies of the INSPIRE Directive and the specific profiles of the three main categories of users.

However, three tests, customer satisfaction analysis made during symposium and workshops and a market analysis on supply and demand show how e-LP has a training relevance. At the same time it can respond to questions that come from different professionals, from public and private administrations, associations, but also from scientific research and culture.

Beyond its real competitive value (performance), the e-LP-can interact with existing platforms at the European level (both academic or professional) and grow in tandem with them thus becoming a useful tool for Universities and higher education on Spatial Data management.

Updates and operation of the Glossary should be considered to all effects not only as components of a monitoring device, but also as criteria to appreciate the utility of the e-LP and its interactive ability. In this regard, there is significant room to improve the access to the Glossary and make it smoother.

The use of an e-LP will help expand the SD language and not only to codify terms. Language expansion by means of the e-LP will help to set up new semantic domains and recognize the necessary conditions for interoperability, a strategic issue within the INSPIRE Directive. The problem is how and to what extent can e-LP's maintenance and upgrading be ensured on a regular and timely basis.

The awareness and dissemination plan has been formally completed, as indicated by the assessment template, but to assure the sustainability of the e-LP additional support should be provided by the project partners.