



Vocational Education and Sectoral Training network on GIS & GI Application domains

Progress Report

Public Part

Project information

Project acronym: VESTA-GIS
Project title: Vocational Education and Sectoral Training network on GIS & GI Application domains
Project number: 2007-1989
Sub-programme or KA: Leonardo da Vinci
Project website: <http://www.vesta-gis.eu/>

Reporting period: From 01/11/2007
To 31/10/2010
Report version: Version 1
Date of preparation: 15/06/2009

Beneficiary organisation: GISIG – Geographical Information Systems
International Group

Project coordinator: Mr. Giorgio Saio
Project coordinator organisation: GISIG – Geographical Information Systems
International Group
Project coordinator telephone number: +39-010-8355588
Project coordinator email address: +39-010-8357190

This project has been funded with support from the European Commission.

This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

© 2008 Copyright Education, Audiovisual & Culture Executive Agency.
The document may be freely copied and distributed provided that no modifications are made, that the source is acknowledged and that this copyright notice is included.

Executive Summary

The VESTA-GIS network is promoted with the overall aim to pool knowledge in GIS domain (technology, applications of Geographical Information Systems – GIS), to share experience and foster innovation (new approaches) in vocational training by bringing together experts, organisations and users of Geographical Information (GI) and its application domains, as well as to identify the trends and skills requirements in this area and to improve the anticipated benefit of vocational training initiatives. The aim of this document is to inform on project objectives, main achievements after the first half of the project and plans for future activities towards the widest audience of potentially interested subjects (including Commission services and representatives from other similar or complementary projects), also in view to promote synergies and joint initiatives on a common field of interest.

VESTA-GIS proposes to cope with the new challenges and with the wide EU competence needs as required by the community of addressed users (European GI potential and actual users, providers of GIS training, both at academic and professional level, officers of Administrations as main users of geo-information, environmental operators, companies providing GI services, as well as fresh graduates approaching the labour market). The Network should then be considered as a comprehensive framework acting as a “clearing house” among offer and demand of training in GI that is able to address efficiently a series of opportunities for training courses/modules and mobility at a European level.

The project consortium is organised in two levels, to ensure a good management of activities together with a wide geographical coverage:

- the core partners, responsible for specific tasks and complementing one another according to their own expertise (either GIS research and development, continuing education, GI education, GIS thematic applications);
- the associated partners, nowadays about 70 organisations from various European countries, ensuring a notable geographic coverage of project activities and a distributed sound technical knowledge in GI and training and education activities.

The Network itself, open to all organisations wishing to contribute to a wide Geo-information training environment, is developed in three levels:

- central level, as a common framework for all VESTA-GIS members;
- thematic level, as thematic sub-networks to link GIS experts and users in GI for application domains, starting from three leading streams: Water Resources Management, Natural Environmental Protection, Coastal Management and Landscape;
- regional level, for which the members of the network are committed for local awareness, dissemination and exploitation activities.

The project activities are centred on some main components, representing its main outputs:

- The VESTA-GIS Training Framework, intended as the tool to support GIS training and transfer of knowledge within the network and towards the external audience of GI and User Communities, working through an online course catalogue based on shared metadata and benefiting of an eLearning platform able to host some of the proposed courses.
- The VESTA-GIS Mobility Framework, intended as tool to promote people mobility within the Network, thanks to an online database for placement offers and demands.

The adopted approach involved a first phase of analysis of GI training needs and offers which brought to the agreement on shared metadata, while the designing process for both the course catalogue and the online database for mobility implied different phases and a revision of requirements upon the end of each phase. The same approach will be followed in the second part of the project, where the above main outputs, presently in their demo version, will become fully operational and will be exploited for the widest audience.

Further details on VESTA-GIS can be found at <http://www.vesta-gis.eu/>.

Table of Contents

1. PROJECT OBJECTIVES.....	5
2. PROJECT APPROACH.....	7
3. PROJECT OUTCOMES & RESULTS.....	13
4. PARTNERSHIPS	20
5. PLANS FOR THE FUTURE	22
6. CONTRIBUTION TO EU POLICIES	25

1. Project Objectives

The main aim of VESTA-GIS is to create a network operating on a comprehensive framework as "a clearing house" devoted to combine access to training courses and mobility opportunities. The project is then developed according to two parallel objective streams.

The first one, the "Training Framework", aims to collect, organise and deliver vocational training contents on the GIS technology and tools as well as on their sectoral applications. The trainee should access such tool to find the most suitable training opportunities according with its needs. It is expected to offer new and more structured occasions to organise learning opportunities focused on specific thematic applications of GI. The project activity is developed considering both GIS technology per se and the GI thematic application domains, starting from three leading themes: Water Management, Natural Environment Protection, Coastal Management and Landscape.

This objective will be achieved, among others, also setting-up a Training Course Catalogue, where the information about relevant courses and other training contents delivered by the network partners are collected and made available in an on-line searchable database. To ensure quality and consistence of the available information, the VESTA-GIS Catalogue will collect and display the metadata of each course as suggested by the outcomes of the analysis of the training course offer and demand.

Throughout the Training Framework, the network wishes to implement procedures for identifying non-formal and informal learning, one of the main objectives of the Copenhagen Declaration and conclusion of the EU council number 9175/04EDUC101 SOC 220.

On the side of course providers, the network pursues for its partners, by offering an efficient tool, the possibility to promote and give visibility to their courses, as well as a better exploitation of their training material and of the accumulated teaching experiences. In particular, the VESTA-GIS course catalogue represents a chance for educational institutions to reuse quite specialized tailored courses, by making them visible to a pan-European GI-public. From a user perspective, seekers of vocational GI-education might find specialized offers that match their needs even better than expected.

The second objective stream, the "Mobility Framework" aims to define operational procedures and a context for promoting people mobility through placements into a working GI environment of students/new graduates and people on the labour market. The main outcomes of the Mobility Framework will be the realisation and population of an online database for placement offer and demand, accessible from the project web site, where candidates will be able to post their CVs and/or apply for placement offers submitted by host organisations.

All the above "embedded" in the general networking stream that foster a community for training in Geographical Information also thanks to thematic sub-networks in the different GI applications domains addressed by VESTA-GIS (Water Resources Management, Natural Environmental Protection, Coastal Management and landscape).

The Training and the Mobility Frameworks are being developed in parallel along the project, with the intention to realise mutual synergies between the activities promoted by them (i.e. a person on placement profiting of other training opportunities to improve his/her skills). In this prospect the involvement of users since the beginning in the testing and actual use of both tools will guarantee the sustainability of the project outcomes and their consistency with the real market expectations.

The VESTA-GIS target groups are mainly the GI potential and actual users in the different EU Countries, as well as the providers of GIS training (both professional operators and GI experts and Academy). They are both practitioners and, even more, people potentially

interested to GIS training but impeded by the fragmentation of offer, that is to be re-conducted to consistent and customisable training paths.

The project users span from officers of Administrations, main users of geo-information, to environmental operators, to companies providing GI services that need qualified skill. They are all working with GIS (or in case more simply only with geo-information to be browsed) but often are coming from different technical and scientific disciplines and frequently not committed to the management of GI from an Information Technology point of view. Those persons need to be able to keep their sectoral application-oriented perspective (hence the decision of starting since beginning with some sectoral fields where the project partnership has a consolidated experience of networking for users' involvement) but as well to efficiently manage geo-information, with the additional new requirement of complying with the provisions of the EU Directives, especially INSPIRE for the management of environmental geo-information. In a few words, the attempt is to train people on how to daily use the geo-information tools in their specific field of work in a suitable and user-friendly way.

VESTA-GIS targets also fresh graduates approaching the labour market. They are to be pooled and endorsed by their University, the interest of which is demonstrated by a qualified membership in VESTA-GIS.

In terms of impact, VESTA-GIS is addressed to implement an operational training network between experts of Geo-information and GI users in the Application domains with the aim of favouring/stimulating the involvement of sectoral stakeholders both as course-providers and ways to get a qualified and larger audience. Being VESTA-GIS an open network, the training is expected to be addressed both to external trainees and to "internal" trainees from organisations included within the network, so that also the partners can take advantage from the experience of the other ones, compare their knowledge and improve their education in GIS application domains.

The competitive advantage offered by the network to its partners and their continuous involvement in carrying out training and mobility activity will allow to individuate case by case the best policy of use and conditions for delivering training, in the different existing situations. Such conditions are envisaged by the continuous increase of demand by the market of trainees, even if it cannot be easily quantified. In addition we have to consider the strong impact introduced by the INSPIRE Directive in the field and the consequent skill requirements in Geo-information. Most partners have a good potentiality for offering vocational training but such activity is usually out of their main mission. There is then a meaningful commitment to feed and enlarge the network that allows to exploit their potentiality offering a brokering service towards users and an external visibility that would not be otherwise possible.

2. Project Approach

The main VESTA-GIS approach follows the parallel development of the two main project tools, namely the Training Framework and the Mobility Framework, other than the general networking framework. Both are based on the awareness that geospatial technology is a rapidly growing and changing field: vocational training and education play an important role to meet workforce needs within Europe. The speed at which new fields are adopting GI-technology, the new challenges of the INSPIRE directive and the rate at which equipment and software are modified and updated make it difficult for many institutions offering vocational education to keep pace with the current developments. Since geospatial technologies are used in many different business sectors, vocational education in GI is offered in various disciplines such as ecology, health care and marketing¹ and subsequently in very different approaches. Together with a heterogeneous vocational education market lacking standardized offers and certifications, it is difficult for employees to find adequate offers of vocational GI-education.

VESTA-GIS tries to improve this situation by establishing working tools to support GIS training and transfer of knowledge within the network and towards the external audience of GI and User Communities, and enhancing for its target groups the development of skills in Geo-information, as well as the sharing of information about and the access to learning and mobility opportunities.

The added value of the adopted approach is given by the close involvement of target users since the beginning of project activities, starting from an initial survey on GI training needs and offer, and by the circular design strategy adopted. In fact, this strategy foresees a constant check of the consistency between project activities and initial objectives, considering them flexible and susceptible of readjustments upon the feedback from users and the lessons learnt during implementation. Therefore, a pragmatic approach based on real project experiences along the performance of the activities.

The project approach is further illustrated in details in the following sections, regarding on one side the main streams of project activities, on the other side the evaluation and dissemination/exploitation strategies.

The Training Framework

One of the first activities of VESTA-GIS has been the assessment of training needs, of the resulting requirements for professional skills and the evaluation of the training market situation and its key issues at a European level. A survey has been conducted with the purpose to obtain an overview of the current situation upon which to build the project activities. The results of the survey have been also the basis to help produce a feasible structure for the description and validation of courses to be included in the VESTA-GIS training catalogue, one of the main features of the training framework.

In fact, the VESTA-GIS training framework foresees a multilingual course catalogue aimed to assist people in finding the right educational offer tailored to their individual needs.

Another main feature concerns the definition of shared metadata for training courses description, defined as well upon the results of the survey on training needs and offers and following a long negotiation of meanings by the project members, to be used for facilitating the access to archived knowledge in many fields, according to an interdisciplinary approach. The VESTA-GIS course catalogue is then structured upon a standard training metadata

¹ To reduce complexity here the VESTA-GIS focus was initially narrowed to three application domains (Water Management / Natural Environmental Protection / Coastal Management and Landscape) in addition to their common underlying GIS technology, as already specified within project objectives.

profile and filled in with the information provided by the Members of the network with the description of their training courses and related contents to make possible an easy access to the course information by training tutors or by the trainees, directly.

The training framework also foresees a flexible organisation of the training material within a VESTA-GIS eLearning platform allowing direct delivery to some courses out of those in the catalogue. Basically, the training material provided should be organised according to the following levels of complexity, to make easier the assembling of components in the diverse occasions and in order to use the clearest and efficacious classification:

- **training unit**: it is the basic component of the course, according to didactical needs. In a future it could be used separately and in case be re-used in other courses/modules. Currently however this is not foreseen. Users will have access directly to courses. In case, course providers could decide to combine training units into new courses, but this will be verified against didactical needs and operational feasibility;
- **course**: a set of training units provided by a training provider to the trainees or to an organization. It is the basic and main element of the catalogue;
- **training package**: a combination of courses, be they assembled by the users, on the indications of the catalogue, or already planned by the providers.

For pragmatic reasons it was decided that the basic element to describe within the VESTA-GIS course catalogue should be the smallest possible, individually "bookable" educational unit. In some cases this might be a single e-learning lesson, a half day seminar or even a nano-learning element². In other cases this might be a comprehensive year-long course, composed of a sequence of "modules" which cannot be taken individually.

The Training Course Catalogue is then based on the above organisation of training material in order to allow to customise learning path according to specific training needs, offering for example to an organisation a flexible and customisable opportunity to give in-house training to its employees.

A main issue was faced by the project partners to define quality criteria for the validation of training course metadata before uploading them on the catalogue. To such purpose, an additional deliverable was produced by the partnership clearly explaining the procedures and responsibilities to apply for the evaluation of course metadata which are submitted by training providers. Basically, the VESTA-GIS metadata validation derives from the satisfaction of four foreseen requirements, namely:

- **Completeness**: it is necessary that the sections labelled "mandatory" in the training metadata form are fully provided. If only one of this is not provided the requirement is not satisfied;
- **Exhaustiveness**: it is necessary that in the description sections of a course there must be necessary and sufficient information, particularly verified in the following:
 - organizational structure,
 - contents overview,
 - course division in training units, if present, relative duration and toc (table of contents),
 - learning objectives and clear definition of learning outcomes.
- **Consistency/Coherence of the contents**: it is necessary that the metadata provided should not contradict among them, for example the learning objectives must be coherent with contents overview;

² Small junks of context related information, which can be absorbed within a maximum of 15 minutes time length and which are delivered on handheld devices.

- Explicit clearness (embedded) of the information: it is necessary that the metadata description is explicit. This means, for example, that a course description cannot be done by just using keywords or links to website.

A procedure for cross checking among the partners has been decided to ensure neutrality in validation. According to this, each partner appointed a person in charge for validation of training metadata, checking the metadata uploaded by another partner as well as those regarding courses regarding a subject on which the partner itself has a specific competence.

If, upon checking, only one of the above requirements is not satisfied, the course will not immediately be listed in the catalogue and the providers will be requested to refine parts of the metadata table.

This effort to constant quality assurance and refinements upon realised activities and inputs provided by users is part of the “circular approach to project design and implementation” previously described. It is also applied to the other main stream of activities, the Mobility Framework, as described in the following section.

The Mobility Framework

As already mentioned, the Mobility Framework is designed to establish common procedures and a favourable framework to promote people mobility among participating organisations and users, particularly working placements for students, new graduates and people in the labour market.

The mobility by itself is not funded by VESTA-GIS but by the involved organisations through ad hoc agreements. Information on Leonardo da Vinci grant opportunities for mobility funding and support to applicants are also provided. Mobility is promoted both at the general VESTA-GIS Network level and at sub-networks levels with reference to application domains. A “Mobility Vademecum” as practical working tool for the actors involved in mobility has been produced and an on-line database collecting offer/demand of placements has been set-up and will be constantly up-dated to promote mobility within the network.

The mobility will be monitored along the project duration and beyond, according to quality procedures and upon collection of the final reports on achieved results from beneficiaries, some examples of which will be selected as best practices and published on the booklet “Mobility Best Practises” to favour a multiplying effect.

The adopted approach intends to simplify organisational procedures for people looking for placements and organisations willing to host trainees, providing them with a hands-on tool to be used as guidance for proper organisation and smooth running of each placement.

A demo version of the tool was designed and agreed among the project partners, foreseeing the following features:

- Job offers list by host organisations (ordered by date, domain or other parameters)
- Search for a candidate (for host organisations)
- Insert job offer (for host organisations)
- Search and apply for jobs (for candidates)
- Upload CV to the VESTA-GIS database (for candidates)

The first three features are reserved to VESTA-GIS Associated Members, while the last two are accessible upon free registration (for statistical and networking purposes only) by individual candidates.

An effort was made by the partnership to identify the most suitable keywords and metadata to built the database in such a way to be easily usable and not too time consuming for applicants: upon a quite long revision process the pilot version has been released at the end of April 2009 and is now going to be populated by CVs and placement offers upon an open call distributed to the network of associated members and their individual partnerships and

contacts. Being VESTA-GIS an open network, we believe the mobility framework could become a powerful tool not only to promote mobility in GI-related fields across Europe, but also to enlarge the network itself and involve an increasing number of organisations, with a multiplier effect on the project activities and its future sustainability.

Evaluation strategies and quality assurance procedures

Ad hoc procedures have been agreed among the partners to evaluate project progresses and ensure the quality of project activities and deliverables. Specific project indicators have been defined at the very beginning (at the proposal stage) to measure the progress of the work done, namely:

- Number of courses included into the catalogue
- Number of organisations subscribed to the network
- Number of organisations subscribed to the “Water Resource Management” thematic sub-network
- Number of organisations subscribed to the “Natural Environment Protection” thematic sub-network
- Number of organisations subscribed to the “Coastal Management and Landscape” thematic sub-network
- Number of promoted placements
- Number of workshops/dissemination seminars
- Number of participants in each awareness workshop/dissemination seminar

The extent to which each indicator rates the expected outcomes is based on defined numerical values which could indicate a very good achievement of the project results, the achievements of the projects results with possibility of improvement, or points out problems met during the carrying out of the tasks or delays in the achievement of the projects results. These indicators are used to monitor the quality of the project activities and the progress of the work; when possibility of improvements or problems are identified, they act as “alarm bell” for the project partners, who shall identify the possible causes and take decisions for corrective actions.

Procedures and mechanisms to ensure the quality of project activities and outcomes are also defined and detailed in a specific “Quality and Evaluation Plan”. The process of quality management is aimed at a continuous improvement of project development and outcomes, carried out by the partners along the project also with the contribution of external evaluators and through monitoring and testing activities.

The assignment of the External Experts is based upon specific criteria taking into consideration their competences and experience in the fields covered by the project both on the point of view of scientific and networking aspects. The experts examine key deliverables, also with respect to the overall goals as expressed in the project plan.

The Quality and Evaluation procedures have been conceived so as to assure a cyclic process and a continuous improvement of the project outcomes and the rules which state the quality standards. A Quality Management Report is issued each six months to report the evaluation process and assure that the outcomes of the project corresponds to the needs of the target groups and to commonly accepted quality criteria.

The effectiveness of the valorisation activities shall also be measured and reported. This includes measuring the intensity and quality of cooperation among the partners, level and intensity of exchange of experience among the partners, visits to the web site, participation in workshops and seminars, degree of satisfaction with workshops, seminars and pilot training actions, effectiveness in the organisation of workshops and seminars, etc. Many of these measures can be assessed by using questionnaires at different events.

Awareness, dissemination and exploitation

A specific dissemination strategy has been agreed to raise awareness on the VESTA-GIS network activities and disseminate the project results and outcomes both at a EU and national level, also in view of their future exploitation.

In particular, VESTA-GIS has planned the following dissemination tools and actions:

- creation of a VESTA-GIS project web-site, continuously updated and maintained along the project, as repository of updated information for the promotion of the initiative. The project web-site also addresses to a restricted area accessible to the members of the Network where the relevant project documents and results are available. It also allows the access to the interface of the main project outcomes, namely the Training Framework (with the Course Catalogue) and the Mobility Framework (with the online database of placement offers and demands);
- the realisation of information material (leaflet, brochures, posters) and other publications (such as the “Mobility Best Practice” booklet) distributed during Regional, National and European conferences and workshops;
- the production and distribution of quarterly issues of the electronic VESTA-GIS Newsletter;
- national dissemination seminars to be organised by project partners at their country level, possibly linked to other national events to reach a wider public. This to involve a large audience of stakeholders potentially interested in the VESTA-GIS Network and its results. The project partners in charge for the events and their location have been selected by the project Steering Committee also to ensure a wider geographical coverage of the dissemination activities;
- the final Conference where the project outcomes will be presented to the EU-wide audience of stakeholders and users. It will represent, on the one hand, the main dissemination event carried out along the project and, on the other one, the start-up of the follow-up activities;
- in general, the dissemination through the participation in sectoral events and meetings (with papers/posters/other promotional material, the establishment of links with other projects/initiatives/web sites, ...).

All the above dissemination channels and tools are expected to be combined at European and Country level under the coordination of the core partners who are responsible for the dissemination activities at national level. They are intended to contribute to the visibility of the ongoing progress of the Network, to create awareness about it and to disseminate the results at the EU and international level.

Some workshops have already been organized to raise awareness about the project towards a wider community, namely in connection with other events of interest to exploit the possibility given by bigger sectoral events to attract a major number of participants.

More specific dissemination seminars are scheduled in the second half of the project lifetime, when the first interim results become available. The aim of such seminars is mainly to get the larger public know about the project results and to exchange ideas between the target groups and the project team in this respects, as well as to validate the VESTA-GIS training framework and available material. The dissemination seminars are planned for target groups and organised by some VESTA-GIS core and associated partners at local level.

Dedicated exploitation activities will be also pursued both at National/Regional level, through the Network partners each leading the activities in the belonging country, and at thematic GI application level. This kind of activities will be guided by a specific “Exploitation Plan” to be agreed among the partners and including strategies for the Network sustainability after the project end.

The exploitation of results will be promoted both through the seminars and the final conference and through direct contacts and meetings with operators to which the partners intend to particularly address the activity (mainstreaming). It will be done by means of results presentations, information material and demo version of the Framework and Course catalogue and mobility scheme. The application for placement positions within the VESTA-GIS members and target groups organisations by the trainees and the participants in mobility actions will be also considered in the exploitation plan, being aimed at multiplying the VESTA-GIS concept in Europe.

The expectations are therefore mainly based on the potentiality of the training and mobility framework and on the network visibility that increases the outreach capacity of partners offering their contribution. Moreover, an added value will be provided not only by the proper working of the network *per se*, but also by the capacity of addressing external actors, that could enter into the network but could also simply cooperate with it (i.e. the network "irradiation").

3. Project Outcomes & Results

Various outcomes have already been realised during the first half of the VESTA-GIS project to reach the objectives detailed in Chapter 1, in particular the possibility for target users to access online tools enabling them to find the most suitable training and mobility opportunities according to their individual needs and based on the available offer. Moreover, one of the main outcomes achieved so far is the “Survey on vocational training needs and offers in GI”, the results of which have been fundamental to orient the implementation of the other project activities, namely metadata definition, course catalogue design, and closely tune them to target user requirements.

Other outcomes, such as the mobility framework, the project web site, awareness workshops and newsletters, also suit the project objectives not only because they help to create the foreseen “clearing house” devoted to combine access to training courses and mobility opportunities, but also because they support the strategy of networking which is another main pillar of the project. The aim is the implementation of a training framework where experts of Geo-information, GI Users and other stakeholders in general (including people on the labour market, training providers, ...) can work together taking mutual advantages from the experiences of the other ones, compare their knowledge and improve their education in GIS application domains. The impact on target user is then assured by this kind of approach, where main stakeholders are continuously involved both as final user and as providers of inputs, initiatives and ideas.

More details about the specific outcomes developed within the first project period are given in the sections below, organised by typology of activity.

Survey on vocational training needs and offers in GI

By means of two on-line questionnaires and some qualitative interviews, a survey was conducted between April and July 2008 addressing the demand and the supply side of the GI-training and education market, with the objective to have a picture of the present situation in the field.

An invitation to participate was distributed by email to all GISIG member-organizations, as well as to all members of various thematic networks. In addition the VESTA-GIS project partners used their networks to identify and invite suitable organizations or key-persons from all over Europe. From the survey a detailed outline has emerged, described in the “Report on vocational training needs and offers in GI”, dealing with:

- **Attitudes towards vocational training** - Most employers find vocational training a relevant matter, but, above all in small enterprises or organisations, it finds obstacles in lack of time and training costs.
- **Course types** – three kind of courses have been pointed out, either by training provider or by employer, as the more usable: long “sustainable” courses (i.e. part time, distance, evening courses, etc.), short intensive courses dealing with technical subjects, with an operational approach, custom-tailored courses, to be activated upon specific request. Interviews also showed a demand for so called “nano-learning” elements.
- **Support and constraints to lifelong vocational training** - From an employer perspective the main constraints for vocational education are seen in education costs and lack of time (77% each), a complex and unclear continuous professional education market in GI (29%) and missing course offers (27%). As the term “missing” could also be interpreted as “hard to find”, the last two constraints strongly support the project goals of providing a catalogue and easy to use gateway for vocational training in GI. One also has to keep in mind that a considerable amount of vocational education is not formally

organized in courses but acquired individually by retrieval of new knowledge through literature or the internet. This is especially true for relatively new and/or fast evolving knowledge-domains within GI, where the educational offer almost always lags behind recent developments.

- **Training benefits** - When it comes to cost/benefit evaluation of certain training offers, qualitative interviews as well as results from questionnaires showed that the most important quality-benchmark of continuing professional education is the successful application of the acquired skills/knowledge in the job. For this reason employers prefer software training and applied skills over conceptual issues for short-term co-worker training. Nevertheless academic titles gained in long-term vocational education programmes are valued much higher by employers than non-academic, rather skill-oriented certificates. This is especially true when it comes to the assessment of job applicants' knowledge and skills.
- **Training costs** - One third of respondent institutions offer vocational GI-education (in most cases just the learning material but no tutoring) for free. Often these kinds of courses are outcomes of funded educational projects. Because of different organizational and didactical models (blended learning, different intensities of tutoring) and country-specific price levels, the comparison has to be treated carefully.
- **Training delivery methods** - More than half of the surveyed training institutions are using a learning platform like Blackboard/WebCT or Moodle to distribute their content. Besides online content, printed materials are still a common and also requested form of delivery. E-learning standards do not play an important role for training institutions. Only 12% are using standards like SCORM or LOM to structure content. In general education providers have a positive attitude towards catalogue building efforts.
- **Contents for training in GI** - As regards training contents, the VESTA-GIS survey was limited to the core-topics of basic GIS technology and the thematic application fields addressed by VESTA-GIS, namely Water Management, Natural Environmental Protection, Coastal Management and Landscape.
While the three application domains give a similar picture on an overall lower level of demand and supply, there is a slightly higher co-worker demand for training on specific GIS software. This might be due to the training needs for existing staff when a new software (release) is introduced. In general, both for training demand and supply, a clear distinction between the subject areas of the VESTA-GIS project is not possible; in fact in many cases cross-sector materials are foreseen.
Spatial Data Infrastructures are becoming more and more important and both technicians and SDI users require additional training to improve their soft competences, also in an interdisciplinary perspective. Almost everyone rated knowledge on interoperability as important or very important, but only less than half of the respondents believed that their organisations had the knowledge and expertise to apply INSPIRE principles.

The report summarising the results of the survey is accessible to project partners within the restricted area of the VESTA-GIS web site (www.vesta-gis.eu), being not a public deliverable.

Definition of a standard metadata template

According to the survey results, the following aspects have been considered while developing the metadata structure for the VESTA-GIS course catalogue (see next paragraph):

- The metadata structure must be capable to adequately describe vocational education offers of very different length and with different aims (skill-oriented training vs. sustainable, more conceptual education)
- There should be a description of target audiences as well as a
- Short description of content, the
- Specification of learning objectives and the
- Mode of learning (traditional courses, blended learning, distant-learning)
- If there is a formal certification, it must be visible from the metadata
- The clear definition of language(s) of material/instruction is an important issue. To enable searching in other languages than English, considered as common technical language, the catalogue foresees a multilingual user interface and (additional) metadata in the language(s) of instruction.
- If there is funding available, it should be indicated in the pricing metadata.
- The metadata structure should allow to refer a certain offer to more than just one of the three initial application domains.

According to the above considerations, the metadata needed to describe the courses to be included in the catalogue have been selected and a common template has been drafted. The aim of this step was to define a set of metadata able, on the one hand, to give final users an exhausting overview about the training units available within the VESTA-GIS network and to ensure them the possibility to directly take arrangements with training providers; on the other hand, to supply a good advertising to training providers, saving at the same time their property rights on the materials.

The templates for metadata are now available in English, Italian, French, German, Dutch, Swedish and Portuguese. They are available for distribution by project partners within the restricted area of the VESTA-GIS web site (www.vesta-gis.eu), but soon they will be available from the course catalogue for free download by all interested subjects.

Training Course Catalogue

It consists in an online catalogue, where information and references about courses or training materials are stored and organised. The themes of such training units are mainly those of the VESTA-GIS project:

- GI Technologies
- Water Resource Management
- Natural Environment Protection
- Coastal Management and Landscape

but also other Geographical Information related subjects can be hosted.

A first version of the VESTA-GIS Training Modules Catalogue has been developed by the University of Gävle and implemented to fit the VESTA-GIS standard metadata template. A user interface has been also developed to allow the search for courses by means of internal search engine and filters (accessible upon free registration) and the uploading or the

modification of courses (accessible only by Core Partners and authorised users, i.e. appointed experts for quality assurance).

The multilingual facility has been set and is currently under refinements for the following languages: Italian, German, French, Dutch, Portuguese and Swedish. In such a way a user will be able to enter a sort of catalogue home page in the selected language and browse a list of courses in that language.

The metadata of some twenty courses have already been supplied by Core and Associated Partners and have been used to test the consistency and the functionality of this first version of the Course Catalogue and above all, to set new and more detailed specification for the implementation of an up-dated one.

During this first test phase, the catalogue is being open only for the Core Partners, but it is foreseen that in a short time, associated partners and the general public will be able to access it as well, following a specific link to be created on the project web site.

On the base of the first test results and on the comments by the Core Partners, it has been recently released the version 1.1 of the VESTA-GIS Training Course Catalogue. Upon further testing, the final version will be accessible at <http://www.vesta-gis.eu/>, following the link "Training Framework", as well as from the VESTA-GIS eLearning platform (see address in the section below). The entry page will also contain information on how to become VESTA-GIS Associated Partners and be, in that way, entitled to submit course metadata to be uploaded on the catalogue. A specific adherence form has been prepared and made available in this respect, thus realising a close synergy between mobility activities and the general purpose of network enlargement.

The VESTA-GIS e-Learning platform

It is a federated Dokeos LMS based platform where training providers can upload course and modules for training provision. In this way the Consortium allows those providers not having direct access to an LMS or unable to directly install and maintain one (for instance, for economic reasons) to profit of the availability of VESTA-GIS federated platforms. The main entrance is from the portal set up at the University of Gävle at <http://netcampus.inspire-x.se/vestagis/>. Presently from the platform in Sweden it is possible to access also the Course Catalogue and the local VESTA-GIS platform installed by GISIG, project coordinator. Some training courses have been also already uploaded and are available on the platforms.

The aim of local platforms, to be increased in number during the second part of the project, is to host own and/or national courses or other courses related to the specific fields of interest of the partners involved and/or related to the three thematic streamlines of VESTA-GIS (nature protection, water resources, coast and landscape).

Mobility Framework

Through the VESTA-GIS Mobility Framework, the Consortium intends to promote the assignment of grants to university students/graduates/researchers applying individually, or through an institution of higher education, to complete a period of practical training in a company abroad normally lasting between 3 and 12 months. Students who have just graduated and or undertaking post-doctoral studies are also welcome, as well as those undertaking placements as an integral part of their academic course which will be assessed as part of their final award.

A "Vademecum for Placement Management" as guidance from the promotion to the reporting phase of each mobility has been produced, including provisions for EUROPASS-Mobility and actions to define quality criteria according to the European Quality Charter for Mobility (ref. OJ L 394/8, 30.12.2006).

All placements organised within the VESTA-GIS mobility framework should have, in principle, two main characteristics:

- Being inter-sectoral (mobility flow from Academia to Industry – intended in a wider sense as non-educational bodies– and viceversa)
- Being transnational (from one country to another, i.e. a person should not perform a training placement in the country where he/she lives and/or of which he/she is national)

The candidatures could be collected in different ways:

- the candidates answer individually to specific offers of placements by the host organisations;
- the sending universities distribute the placement offers opportunities towards their students/new graduates/researchers;
- the sending organisations collect CVs of their students/new graduates and send them to GISIG (or directly post the CVs on the on-line database, see below) for distribution towards potential host organisations.

The VESTA-GIS Mobility Framework is based on a continuous process, with no fixed deadlines. All candidates and host organisations can submit their requests/offers at any time they need.

An on-line database collecting offer/demand of placements has been designed and is going to be implemented and constantly up-dated with offers/requests of placements. To this purpose, an open call to collect candidatures and offers has been recently launched within the VESTA-GIS Network and the first placements promoted through this tool will be hopefully started in a few months.

The on-line database is organised in two levels:

- Public “candidate” level, where potential candidates can have a look at the offers of placements posted by the project partners and apply for the available position upon free registration and/or simply send their curriculum to submit their candidature.
- Registered “hosts” level, only available to VESTA-GIS Core and Associated Partners, where the project partners can post their offers of placements and have a look at the available candidatures.

It is also planned that the Mobility Framework of the VESTA-GIS web site could include a FAQ section addressed to answer common questions by the potential candidates and/or project partners concerning mobility aims and procedures.

To access the Mobility Framework and its online database interested candidates/hosts simply have to connect to the project web site at <http://www.vesta-gis.eu/>, following the link “Mobility Framework” on the left menu. As mentioned above, the access level is public for individual candidates, while hosts will be allowed to check the database and post placement offers only if they are VESTA-GIS Associated Partners (registered “hosts” level). As for the Training Framework, here also the VESTA-GIS adhesion form will be available to collect memberships from new organisations and enlarge the network.

VESTA-GIS Web site

The project web site has been developed in the first months of the project, with the aim to raise awareness on the project objectives and activities as well as, in general, on the potentialities of the VESTA-GIS network.

The specific web domain www.vesta-gis.eu has been registered and dedicated to host the project web site. The VESTA-GIS web site is an essential communication tool to allow people outside the project to find out what the project is about.

The web-site will run along the project and will be maintained as follow-up tool at the end of the contractual period, to act as awareness and dissemination channel and to ensure integration among the project partners and the larger audience of stakeholders. The technical information, the workshop/seminars' proceedings, the newsletters, altogether with the background material provided by the partners is the basis for the web-site contents. Moreover, as above mentioned, the VESTA-GIS web site will also allow the access to the VESTA-GIS Training Framework with its Course Catalogue and to the Mobility Framework with its on-line database on placements offers and demands.

VESTA-GIS web site includes also a Restricted Area/Document Server, representing a useful tool to improve the communication among the Consortium and exchange of updated information.

VESTA-GIS Awareness Workshops

During the first phase of the project various workshops were organized as awareness and consensus building actions on VESTA-GIS and its community, linked with the activities of network building and awareness foreseen within the project; more specific dissemination seminars are scheduled in the second half of the project lifetime, upon availability of the first interim results.

In particular, the following workshops were organized, also in connection to other important sectoral events in order to reach a wider public of stakeholders:

- The VESTA-GIS Training Framework - Genova (IT), 21st November 2007, organised as a dedicated session in the Final Conference of the ECO-IMAGINE (European Conferences and forum for Integrated coastal Management and Geo-INformation rEsearch) project "*Future perspectives of GI for ICM*", held in Genova (IT), on the 21st - 23rd November 2007.
- Training on Geographical Information, a challenge in a new European context – Salzburg (AT), 1st July 08, a Workshop organised within the *second Geoinformatics Forum symposium (GI_Forum'08)* held at the Salzburg University Centre for Geoinformatics (ZGIS), Austria on the 1st- 4th July, 2008.
- Training and knowledge needs in Geographical Information for the Nature Conservation - Genova (IT), 6th November 2008, a joint workshop of the projects VESTA-GIS and NATURE-SDI*plus* besides the NATURE-SDI*plus* kick-off meeting held in Genova (IT) on the 6th - 8th November 2008.

The proceedings of the VESTA-GIS events are available for free download on the project web site at <http://www.vesta-gis.eu/>, following the link "Proceedings" on the left menu.

VESTA-GIS Newsletters and other promotional material

A different way of communicating VESTA-GIS results, news and achievements consists in the VESTA-GIS Newsletters (foreseen every four months). They are published on the public area of the project web site at www.vesta-gis.eu (following the link "Promotional material") and distributed to relevant mailing lists. The core and associated partners are invited to circulate the newsletters to all people that may be interested in receiving it and in case to join the network.

The concept of the newsletter is to widely and actively spread information on the project. The VESTA-GIS newsletters are then expected to be composed of short and easy to read

publications and flash news on project activities, events and results, addressed to the wide target audience of the project. This policy has proven to have positive effects on the dissemination since it maintains the interest of the VESTA-GIS community in project results and enhances the level of awareness about the project activities. It is also considered to be a more proactive form of communication as opposed to a passive strategy, i.e. expecting people to search for project news. This choice mirrors the necessity of relating to the specific needs of the target audience which ranges widely.

Among the promotional material, a project leaflet in English has been created in order to provide a brief presentation of the project's objectives and activities, as well as the contacts for joining the network. A significant number of leaflets was printed in time to distribute them on the occasion of main sectoral events in which the project partners are participating since the project beginning, while additional copies will be printed and distributed in the events foreseen for forthcoming months.

Translations of the leaflet were also produced in Italian, German, Dutch, French and German for a more effective dissemination also at a national/local level. All versions of the leaflet are available for free download on the project web site under "Promotional material" (see above).

Moreover, a poster to introduce the project has been produced and used for promotional purposes on the occasion of some sectoral international events in which the VESTA-GIS Core Partners participated, also presenting papers on VESTA-GIS (i.e. GI_Forum 2008, INSPIRE Conference 2008, EUGISES 2008).

Also the poster is available for free download on the project web site under "Promotional material". A French translation of the poster is also available.

4. Partnerships

The VESTA-GIS Network is organised according to three levels of partnership to meet the need for a large participation, guaranteeing an effective management of the project and of resource allocation at the same time.

- 1) the Coordinator, GISIG, is in itself a network and, as such, is taking the responsibility of most of the “networking” work packages foreseen by the project, taking support from:
- 2) Core partners, identified to satisfy specific requirements of the project, responsible of specific tasks according to their expertise;
- 3) the other Members of the Network, the “Associated partners”, contributing to the networking training activity towards transfer of skills, methodology and tools in a wider transnational context, according to their fields of interest.

You can find below short presentations of the Coordinator and the Core Partners. A complete list of Associated Partners is available on the project web site at <http://www.vesta-gis.eu/> following the link “Partners” on the left menu.

1. **GISIG – Geographical Information Systems International Group (IT)** is a Sectoral European Association, constituted in 1992 as a COMETT UETP (University-Enterprise Training Partnership). GISIG has a long experience in promoting and managing large transnational partnerships, devoted to networking, innovation and technology transfer in the GI field, including training and mobility initiatives within Leonardo and, previously, within COMETT. Among its Members, some major GI technology vendors guarantee a close follow-up of technology development, also through the possibility to access their catalogues of courses; some others are also committed to ensure a better impact of the initiatives promoted by the Association on a regional/national level.

2. The **GIS Institute at the University of Gävle (SE)** is a multi-disciplinary research and innovation centre, recognised as a national focal point of GIS-related research and development in Sweden. It has a long lasting experience in managing on-line courses and takes care of the implementation of the VESTA-GIS Training Framework and the related tools.

3. **Z_GIS**, the “**Centre for Geoinformatics**” at **Salzburg University (AT)** is a centre of competence active in research, continuing education and industry cooperation. The experience of the Centre is precious to coordinate the need analysis and to give fundamental inputs to the definition and evaluation of the courses metadata.

4. **LabSITA**, at **Sapienza University of Rome (IT)** performs research studies, applications and education on advanced applied techniques of Geographical Information and has developed jointly with AICA (Associazione Italiana per l'Informatica ed il Calcolo Automatico – <http://www.aicanet.it>) the programme and the syllabus of GIS certification - endorsed by ECDL Foundation core level (<http://www.ecdlgis.com>), in order to offer a programme for professional skills recognition in GI.

5. **SADL**, the **Spatial Applications Division Leuven, R&D division of the Katholieke Universiteit Leuven (BE)** guarantees the link with the INSPIRE implementation and training needs evaluation, in particular concerning the suitability of the training material with regard to the INSPIRE provisions and the cross check of the INSPIRE thematic data (Annexes) towards the evaluation of the training modules for the thematic application domains.

6. **IRIDE Acqua Gas** the Water management Utility branch of the IRIDE Group (IT) and 7. **ICCOPS Landscape, Natural and Cultural Heritage Observatory (IT)**, a Non-

Governmental Organisation recognised by the UNEP Mediterranean Action Plan, lead the activities of two of the thematic sub-network considered in VESTA-GIS, related respectively to the Water Resource Management and the Coastal Management and Landscape application domains.

The **Associated partners** participate according to their specific interest by making own training courses accessible by the network, by participating in mobility initiatives (either as hosting or sending organisation), or as beneficiaries of the VESTA-GIS Training Framework. Moreover, they are involved in networking, dissemination and exploitation actions.

Presently, the VESTA-GIS Network (Core and Associated Partners) is composed by 75 members from about 20 different European countries. Most of the involved partners have a long record of experience in GI projects and within EU-funded programmes, inter alia in the Training and Education field, and are consequently familiar with the valorisation requirements to be applied towards the VESTA-GIS target groups. Moreover, most of them were already used to work together and can guarantee a good cooperation approach to the project initiatives.

The partnership has a sound scientific and technical knowledge that, through co-operation among the various stakeholders involved in the project, will be shaped into the collection, selection and availability of training material, with the related added value, in order to meet the training needs assessed in the first phase of the project. Moreover, the European coverage of the project allows to cross-relating different situations in the different Countries.

A so large number of Associated Partners also gives the possibility to enter in contact with many stakeholders and target groups, as well as to cooperate and exploit synergies with other complementary projects and/or networks, thus enhancing once more the opportunities of dissemination for the project outcomes.

5. Plans for the Future

Some meaningful activities have to be completed and/or refined during the second phase of the project in order to reach the initial objectives. They refer in particular to completing the setting-up and effectiveness of the Training Framework and of the Mobility Framework, with all their foreseen functionalities, as well as to dissemination and exploitation activities aimed to guarantee the network sustainability beyond the project lifetime.

When it comes to the Training Framework, in April 2009 version 1.1 of the Training Course Catalogue has been released and is now operational, even if further test and refinements activities are still on-going. It is expected to ensure the full consistency between the metadata template and the catalogue structure as well as a more attractive user interface and a user friendly searching mechanism. The final version 1.2 of the Catalogue is expected to be released, upon collection of feed-backs from users, in November 2009.

Also in the future, a particular attention will be dedicated to improve language issues, in order to meet the needs of people who offer and ask for courses other than in English. This has proven to be quite a complex aspect because it reflects on the metadata catalogue structure at the level of database organization and it implies to include and make visible, and therefore accessible, a multi-language area within a Web site in English, as attempted for the VESTA-GIS Course Catalogue. According to the catalogue database structure, training providers are required to submit in any case the complete metadata set in English, in order to have a basic understandable list of all the available courses. If a translated template is available, a training provider is required to send also the translated metadata set. Of course, if an organisation, in view of publishing some courses in a specific language, is willing to translate the standard metadata template in a new language not already foreseen in the Catalogue (we remind that, at the moment, the foreseen languages are Dutch, English (default), French, German, Italian, Portuguese, Swedish), the VESTA-GIS project consortium will be pleased to add a new language to the Course Catalogue.

The Training Framework is also supported by an embedded e-learning platform able to deliver directly to the trainee many kinds of training materials out of those listed in the catalogue. According to this, the main elements of the Training Framework to be finalised are:

- The **e-Learning platform**, based on a Dokeos Corporation Open Source application that, besides storing and delivering documents (including literature, presentations, tests, etc.), allows their organisation in tree structured “learning paths” and the continuous contact between trainee and teacher through an agenda, messaging and document sharing facilities. Two different interfaces, for trainees and teachers, ensure a higher usability of the platform by both categories. As mentioned in Section 3, it hosts also the access to the Course Catalogue as well as links to federated platforms within the Consortium.
- **Course Catalogue** that, in addition to the query facilities explained in the introduction above, will also allow to build-up customised learning paths, with the possibility of tailoring courses on the requirements of a specific person or organisation, according to the training material available and its modularity. To such purpose, a standardised form for specifying tailored courses will be defined and used by trainees and/or tutors for requests of customised offers to the training providers. A set of pre-defined learning paths will be also provided by the Consortium for each network application stream (Water, Nature, Coast). They will form the so called “VESTA-GIS Curricula”. The Course Catalogue is accessible both from the project web site at <http://www.vesta-gis.eu/> following the link “Training Framework” and from the home page of the VESTA-GIS e-Learning Platform (see above).

- **Training Courses:** some of the training courses advertised in the Catalogue could be also hosted by the VESTA-GIS e-Learning platform for allowing direct delivery; other courses/training modules will be addressed directly through the catalogue, in case also with a direct link whenever the courses are already organised in other partner platforms. The basic GIS module will also make reference to the **ECDL-GIS**, the European Computer Driving Licence for GIS. The modules hosted within the platform could also be connected to a **GeoPortal** for practical exercises with actual geo-data and the development of test-cases (in case, also with own data of the organisations the trainees belong to).
- **VESTA Training Guide**, describing the platform architecture, the rules for accessing and use it, both for the organisations providing courses/training material and for the trainees, as well as a guide on how to access and use the Course Catalogue.
- **Skill competence tests**, to verify the prerequisites of simulated learning paths throughout the Course Catalogue, before starting them. They will be prepared for the VESTA-GIS Curricula and for basic GI courses linked to ECDL-GIS. For other courses, the specific skill competence test will be prepared by the training provider in case of need and according to his/her requirements (on a not mandatory basis).
- The VESTA-GIS training framework will also define a template of **VESTA-GIS “Certification”** compliant to **ECVET** (European Credit Vocational Education and Training) system, for the benefit of those training providers who do not foresee certification in their organisation but wish to give a sort of informal certificate to the attendants of their courses. The same template could be used for certifications by the project Consortium related to the pre-defined learning paths of the VESTA-GIS Curricula.

Regarding the Mobility Framework, a constant advertising activity on the opportunity offered by the online system will be pursued along the project and further improvements could be made on the on-line database according to the gained experience and the users' feedbacks. The intention is to populate the on-line database with a large offer of curricula and placement offers, to enable the organisation of quality placements within the network. Whenever possible, the official recording of the placement experience for the grant-holder using the Europass mobility scheme will be also supported.

The booklet “VESTA-GIS Mobility Best Practices” will be produced at the end of the project, reporting the results of the best placements organized within the Mobility Framework. This is intended to be a tool for promoting further mobility activities within the VESTA-GIS Network according to specific procedures and quality criteria agreed on by the project partners. To this purpose, a specific report will be required to each candidate performing a placement within the VESTA-GIS Mobility Framework.

Networking activities will also continue during the second part of the project, aimed to enlarge the partnership and to realise a major involvement of stakeholders, also with regards to the thematic level supporting the linkage among GIS experts and users within different GI application, in particular the sub-networks on Water Resources Management, Natural Environment Protection, Coastal Management and Landscape. In this way, it is expected to start a proactive circle, where the more organisations and people are involved, the more efficient and high quality is the network itself and the more attractive it becomes for other potential users.

The involvement of new actors will be realised also using tools like newsletters, project leaflet, information on the web site, organisation of dissemination seminars, in a way similar to what realised during the first half of the project lifetime. Seminars are planned in Bulgaria, Czech Republic, France, Greece, Hungary and Italy. A final conference of the project is moreover scheduled in Genoa (Italy). Each event will be timely advertised through sectoral mailing lists and on the project web site.

According to what explained above, the second part of the project will be characterised by a strong emphasis on dissemination and exploitation activities, each one governed by specific procedures and rules defined by the partnership through the VESTA-GIS “Dissemination Plan”, recently released, and the “Exploitation Plan” to be defined by the end of the project.

A demo version of the VESTA-GIS framework will be also released at the end of the project as one of the main exploitation tools. It will consist of a web application in form of multimedia tutorial, hosted in the project web site and free accessible, which simulates the environment of VESTA-GIS framework, its contents and functionalities as well as the pre-defined learning paths related to the VESTA-GIS Curricula. In particular, the navigation will allow to explore and test the functionalities of the course catalogue, of the e-learning platform and of the mobility framework. Moreover, instructions on how to get the template for VESTA-GIS certification and its references and value at EU level will be included as well.

The demo version of the VESTA-GIS framework has the aim to promote the project outcomes among potential final users, favouring their approach by making them play with the functionalities of the systems and its components.

6. Contribution to EU policies

In the last years, the need for rational and functional management of geo-information within the European Community, as well as the need for a EU dimension to education and training, have been more than once pointed out by the European policies.

On the one hand, the main EU directive concerning spatial information is the INSPIRE Directive, whose purpose is to lay down general rules aiming at the establishment of the Infrastructure for Spatial Information in the European Community, in view of the Community environmental policies and policies or activities which may have an impact on the environment. INSPIRE measures will ensure that the infrastructures for spatial information created by the Member States are compatible and usable within the whole Community and in transboundary contexts. Shifting to more sectoral issues, Member States are asked for example by the Water Framework Directive 2000/60/EC and the Habitat Directive 92/43/EEC to provide the Commission with information on the state of the waters and of the sites of Community importance in a GIS-compatible format and submit maps in GIS format.

On the other hand, the Copenhagen declaration, starting from the Lisbon strategy pillars that recognise the important role of education as an integral part of economic and social EU policies, aims to enhance the cooperation in vocational education and training (VET) in Europe.

Hence the need for vocational training in the field of geographic information and management of environmental spatial data. Different training material, both “traditional” and on-line, is available for technicians and officers to improve their knowledge in the field. Nonetheless different approaches and focuses are found, issues can overlap, courses can suffer from scarce visibility and can be difficult to be retrieved.

The VESTA-GIS project aims to face the above aspects by creating a comprehensive tool able to host, organise and make deliverable vocational lessons on GIS technology and some of their relevant sectoral applications. Such a tool would allow a potential trainee to check his/her knowledge and find the training path most suitable to the needs. In this field, e-learning training technologies are already operational but not widely diffused. They have a pivotal role in education and training actions, being open to a broad spectrum of trainees and location-independent. As a matter of fact, e-Learning facilities give the trainees the possibility to take the courses in their own pace and interact with the teacher at suitable time.

Moreover, the possibilities given by the training framework established and the e-learning environment go in the direction of fulfilling some of the Lisbon Education and Training progress indicators, given that:

- they will increase the opportunities of learners to have access to vocational training even at a later age;
- the e-learning environment can stimulate private companies to allow their staff taking part more often in up-dating training courses and, upon successful results, invest in this kind of training;
- the mobility of students and, in general, people on the labour market is also addressed by the VESTA-GIS Network and it is envisaged a positive impact also on training opportunities abroad for young people.

Community policies stress also the importance for a training action at European level able to assure the fulfilment of the European initiatives and to face transboundary issues. Therefore, a European-wide network as VESTA-GIS can cooperate for the collection and production of training material according to the needs required by the EU directives, including partners with both GIS-technical and training skill. Provisions for competence certifications are also strictly followed (i.e. EUROPASS-Mobility and ECVET adoption).

