

URL: www.vesta-gis.eu

VESTA-GIS NEWSLETTER no. 8 (10/2010)

VESTA-GIS at a glance

The overall aim of VESTA-GIS is to pool knowledge in the GIS domain (technology, applications), to share experience and foster innovation in vocational training by bringing together experts, organisations and users of 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 following main activities are foreseen:

- Network Building and sharing knowledge;
- Analysis of training course offer and demand;
- Implementation of the network training framework, including a course catalogue;
- Promotion of people mobility (students, new graduates and working people);
- Exploitation and dissemination action, including workshop organisation and support to competence validation and certification.

The network is developed with particular emphasis to the involvement of the GI users; in this perspective the network is addressed, other than on the GI technologies, including the cutting edge ones (interoperability, web-gis, standards, etc.), to the application domains, starting initially with:

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

The network is developed in the favourable framework of the new European Directives for environment and territory, which are dealing with problems which are now recognised to have a new European dimension (such as the INSPIRE Directive of 2007).

The Newsletter 8 shows the so-called VESTA-GIS Training Framework and VESTA-GIS Mobility Framework. This issue wants to be a "guide" to whom is approaching VESTA-GIS for the first time and wants to easily exploit the outcomes for own training purposes.

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THE VESTA-GIS TRAINING FRAMEWORK

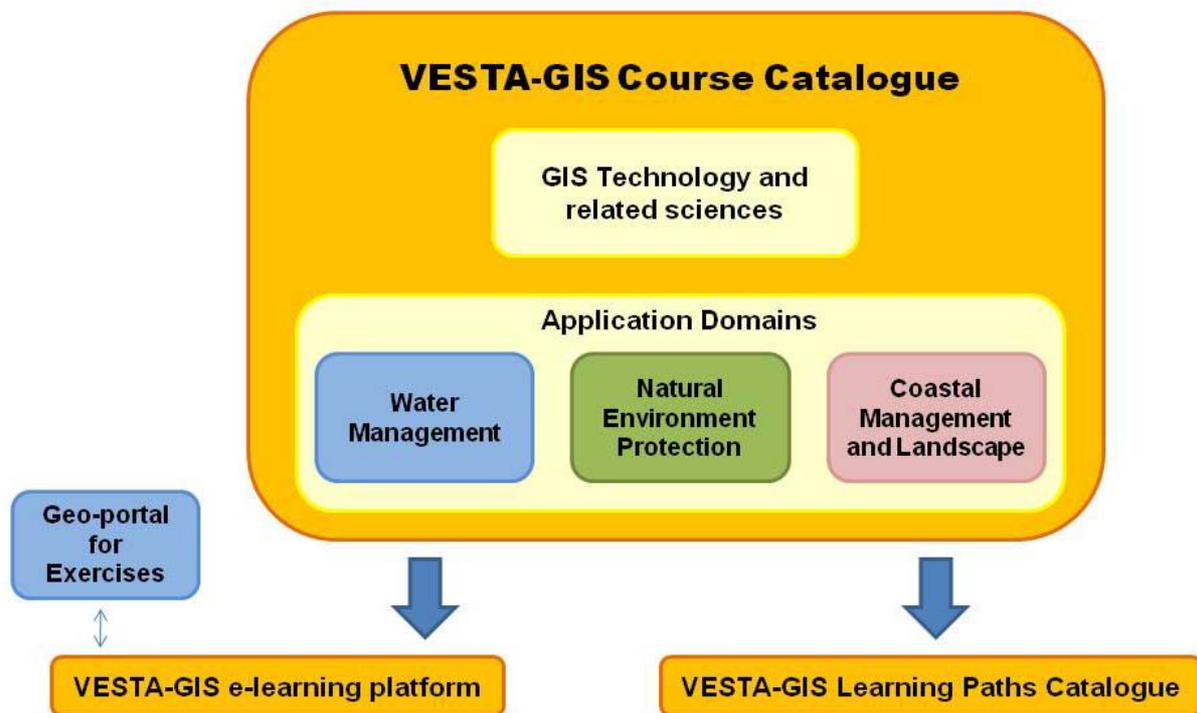


Figure 1 - VESTA-GIS Training Framework - the tools made available to the users

Training Framework Architecture

The VESTA-GIS project is centred on the following main components:

- ⇒ The VESTA-GIS Training Framework, intended as the working tool to support GIS training and transfer of knowledge within the network and towards the external audience of GI and User Communities. It is composed of the course catalogue and the learning paths catalogue. Moreover, an e-learning platform and a Geoportal are as well available to support the distance learning and the possibility to carry out hands on experiences.
- ⇒ The VESTA-GIS Mobility Framework, intended as tool to promote people mobility within the Network.

Importance is given to the VESTA-GIS learning paths, accessible through the catalogue above, since the whole network is running in a perspective of competence accreditation, as devised by the ECVET (European Credit Vocational Education and Training) system. There is confidence that such approach will contribute to enhance competence accreditation in Geo-information, a process that is being started with the proposal for the GIS certification - endorsed by ECDL Foundation, the European Computer Driving Licence for GIS to which VESTA-GIS refers to for the basic GIS courses.

Target Users

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 customizable learning paths.

They span from officers of Administrations, main users of geo-information, to environmental operators, to companies providing GI services that need qualified skills. 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 maintain their sectoral application-oriented perspective but as well to efficiently manage geo-information and to comply with the provisions of the EU Directives, especially INSPIRE for the management of environmental geo-information.

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.

The Course Catalogue

The VESTA-GIS Course Catalogue is one of the main components of the VESTA-GIS Training Framework and it is expected to supply users the access to a wide and high-quality training offer.

It consists in a repository, where information and references (= metadata) about courses or training material are stored and organised. The themes of such learning units are those of the VESTA-GIS Network:

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

but also other Geographical Information related subjects can be hosted.

Courses in the VESTA-GIS Catalogue are detailed through a set of pieces of information (course metadata) able, on the one hand, to give final users a complete overview about the learning units available within the VESTA-GIS Catalogue, 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 rights on the materials.

The metadata have been used to build up a querable database supporting two different kind of users. The first group of users is represented by the *VESTA-GIS Associated Members* that, as authorised training providers, can submit the metadata of their training courses according with the standard template. The second group are the users searching for training courses, that can browse the catalogue or perform an advanced search on the basis of a few relevant criteria (keywords).

How to enter the catalogue facilities

Users of the Catalogue are required to register to the VESTA-GIS Network, following the instruction from the project web site (www.vesta-gis.eu). The registration is free and allows users to use the VESTA-GIS Training Framework and be periodically informed about the news.

Organisations who wish to publish their courses in the metadata catalogue are instead asked to become Associated Partners of the VESTA-GIS Network. Again it is free and it gives the right to publish courses on the catalogue, receive information about VESTA-GIS progress and initiatives and to access as well the *Mobility Framework* (page 9), another tool developed within the project which foresees an on-line database of placement offer and demand to promote mobility across Europe.

How to look for courses

Often, people looking for training opportunities do not exactly know what they are searching for. In other cases, they have a very specific idea, but several different contents and expressions may also fit it. In order to supply a more user friendly access, the VESTA-GIS Course Catalogue foresees three different tools to search the metadata database.

Users who have a general idea of what they are looking for can use the catalogue's internal searching engine. A Google-like interface is available, allowing a user to search for a specific word or sentence in each field of the metadata catalogue. As result, it returns a list of courses that contains the indicated word or sentence (see Figure 2).

To restrict the search field and to help a hesitant user to choose what he really needs, an advanced search may be performed on the base of the other pieces of information included in the metadata template (see Figure 2). The advanced search criteria are the *Course language*, the *Course delivery format*, the *VESTA-GIS Subject Area* and the *Course level*.

WELCOME TO THE VESTA-GIS COURSE CATALOGUE

61 items in the catalogue

Please input search text

Search in the selected language [Advanced Search](#)

[Display the whole course list](#) [Help](#)

Figure 2 - General search criteria: users can search by keywords or use the Advanced Search option, allowing to search for course by Language, VESTA-GIS subject area, course level, course delivery format.

A user, moreover, can have a general look of the catalogue content by browsing an alphabetical list of all courses stored in the catalogue. For each course it is shown only the title and one line description. By clicking a sheets opens showing the detailed information about the selected course (see Figure 3).

Search in the course title		Search in the course description	
COURSE TITLE	Analysis and predictions of labour market indicators 		
SHORT DESCRIPTION	Analysis of time series and spatio-temporal modelling of socioeconomic data		
COURSE TITLE	CASCADOSS Project – FOSS4G applications in environmental management 		
SHORT DESCRIPTION	On-line course consists 5 lectures. Each lecture has a structure combined with following types of materials: presentation and guided animation of how-to conduct processing on selected software. Each type of GIS processing is presented with different FOSS4G application.		
COURSE TITLE	City GML - Linking 3D city models with facility management  		
SHORT DESCRIPTION	Introduction to XML, CityGML and an extension for facility management in CityGML		
COURSE TITLE	Datamodeling & Dataconversion with FME  		
SHORT DESCRIPTION	Introduction to FME, Analysis and conversion of spatial data, lab section		
COURSE TITLE	Directive Cadre Européenne sur l'Eau et gestion de l'eau 		
SHORT DESCRIPTION	Support de cours disponible en ligne, accès distant aux supports et outils, session de formation en videoconference		
COURSE TITLE	Engineering surveying 		
SHORT DESCRIPTION	post-graduate course in Engineering surveying		

Figure 3 - Alphabetical list of courses

Finally, users have the possibility to display and to print the complete metadata set of each selected course.

Courses other than in English

Particular attention has been dedicated to language issues, in order to meet the needs of people who offer and ask for courses other than in English. The challenge is to allow non English-speaking people to benefit the VESTA-GIS opportunities, including and making visible, and therefore accessible, a multilanguage area within a Web site in English.

The multilingual facility has been set and implemented for the following languages: Italian, German, French, Dutch, Portuguese and Swedish. In such a way a user is able to visualize the catalogue home page in the selected language and browse the list of courses in that language (see Figure 4).

Course metadata are in English by default. For courses delivered in other language than English, also metadata in that language are available. Flags in the list of courses indicate the languages in which course metadata are available.



Figure 4 - The multilingual function of the Catalogue

How to attend the courses in the Catalogue

In case the users are interested in one or more courses, they have all the references to contact directly the course manager at his/her institution. The role of VESTA-GIS in the Training Framework is basically to guarantee the reliability of the course providers and to ensure the quality of the published metadata, in terms of exhaustiveness and consistency. On the contrary, the course providers themselves are liable for the updating of the provided information and for the quality of the delivered courses. In other words, VESTA-GIS provides on the one hand people searching for training opportunities with all tools to choose a customised learning path and on the other hand training providers an opportunity to advertise their activity, but it is not an intermediary among them.

The Learning Paths Catalogue

The Learning Paths Catalogue is an additional element of the VESTA-GIS Training Framework developed to better exploit and rationalise the VESTA-GIS training offer. This also in accordance with the idea, developed along the project life, to propose VESTA-GIS Curricula bringing to get the VESTA-GIS endorsement (Page 11).

Different learning paths aimed at acquiring specific skills on GIS/SDI application and policies are proposed to the VESTA-GIS Network members, made accessible from the VESTA-GIS Training Framework.

Each VESTA-GIS learning path is detailed through metadata that gives a general overview of the objectives, the target audience and the courses taken into consideration for the specific training. Courses proposed and forming the learning paths are all from the VESTA-GIS catalogue. Hyperlinks from the learning path to the course catalogue allows the user to consult the full metadata for each course considered in the learning path.

A VESTA-GIS member interested in attending one of the learning paths in the catalogue, after having consulted the related metadata and verified that the objectives match with his/her requirements and skills, should get in contact with the VESTA-GIS Project Office to agree the participation in the path.

In designing the learning paths, courses in English and on-line available have been preferred to the other. This, with the aim to standardise the offer, to foster the participation of users and create less constraints as possible (e.g. logistic and linguistic constrains) to the development of these training activities.

Learning paths address both general GI/SDI issues and their application to environmental domains, such as water resources, protected areas and coasts.

The Learning Paths Catalogue is accessible only by registered users from the VESTA-GIS Training Framework (see Figure 5)

Index of the VESTA-GIS Learning Paths

1. European Directives and Initiatives (GI-Related)
2. INSPIRE & NSDI coordination and management
3. Geospatial Data Harmonisation in the INSPIRE context
4. GIS for Water Resources Management
5. SDI for Nature Conservation
6. GIS for the Assessment of implications in Natura 2000 sites
7. GIS and SDI for the Coastal Environment (basic)
8. GIS and SDI for the Coastal Environment (advanced)
9. GIS for coastal management: computation of coastal indicators (advanced)

Figure 5 illustrates the accessibility to the Learning Paths Catalogue through four sequential screenshots:

- 1. The Learning Path Catalogue:** The main page where users are prompted to log in or register. A red arrow points to the "access the Learning Path Catalogue" button.
- 2. The VESTA-GIS Learning Paths Catalogue:** A page listing various learning paths. A red arrow points to the "SDI for Nature Conservation" path.
- 3. Learning Path: SDI for Nature Conservation:** A detailed page for the selected path, showing its description, objectives, target group, and a list of courses. A red arrow points to the "click on each of the courses to have more information" link.
- 4. Learning Path: SDI for Nature Conservation:** A page showing the full metadata for a specific course within the path, including course title, ID, language, and duration. A red arrow points to the "click on each of the courses to have more information" link.

Figure 5 - The accessibility to the Learning Paths Catalogue. Login to the VESTA-GIS Training Framework, then click on Learning Paths Catalogue (1). A list of all available learning paths appears (2). Click on the learning path of interest to show the full metadata and the list of courses composing it (3). Click on each course composing the learning path to visualize the course metadata from the VESTA-GIS course Catalogue (4).

The e-learning platform

VESTA-GIS fosters also e-learning as a tool to support the training on GIS and related domain of applications. Providers of on-line GI courses are encouraged to advertise their training offer on the VESTA-GIS on-line catalogue since the availability of e-learning material is considered a useful and important requirement at vocational training level.

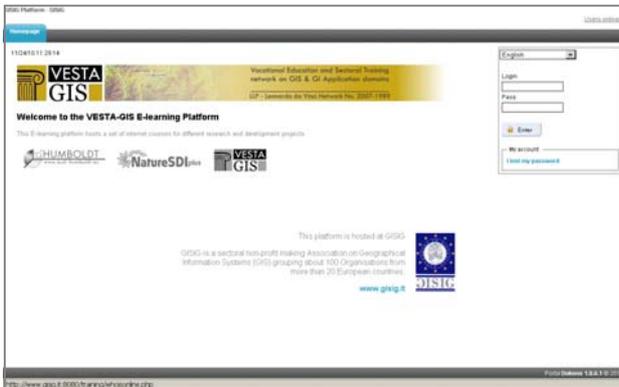


Figure 6 - VESTA-GIS e-learning platform

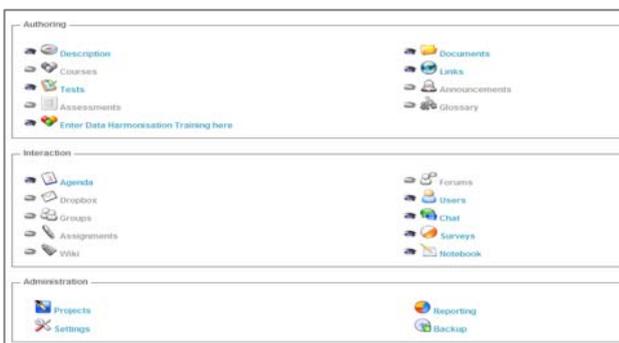


Figure 7 - E-learning facilities

VESTA-GIS uses the web-based, open source e-learning system from Dokeos Inc. The VESTA-GIS e-learning platform (Figure 6) is hosted by GISIG and contains courses deployed and made available by different projects and initiatives. Metadata of these courses are available on the on-line Catalogue contributing to the VESTA-GIS training offer.

Learning facilities

The platform contains several e-learning tools (Figure 7) which facilitates the creation of interactive multimedia-rich courses and assessments. The main e-learning tools are the following:

- Authoring
 - ⇒ Creation of learning paths
 - ⇒ Usage of training templates
 - ⇒ Creation of self tests
 - ⇒ Announcements
- Interaction
 - ⇒ Forums, blogs, chats
 - ⇒ Assignments
 - ⇒ Agenda
- Administration
 - ⇒ SCORM import and export (SCORM is a collection of standards and specifications for e learning tools. E-learning courses may be imported and exported in a SCORM format.);
 - ⇒ Reporting (Here you can track the learners score, progress, interactions etc.)

Example of an e-learning course

In Figure 8, the learning path of the course Data harmonisation is illustrated. A learning path is usually divided into lectures or chapters, which are divided into smaller steps. In this example, the lectures are taught in Power Point presentations with added audio, readings and exercises are provided, and at the end of the path, the students have to do a self test.

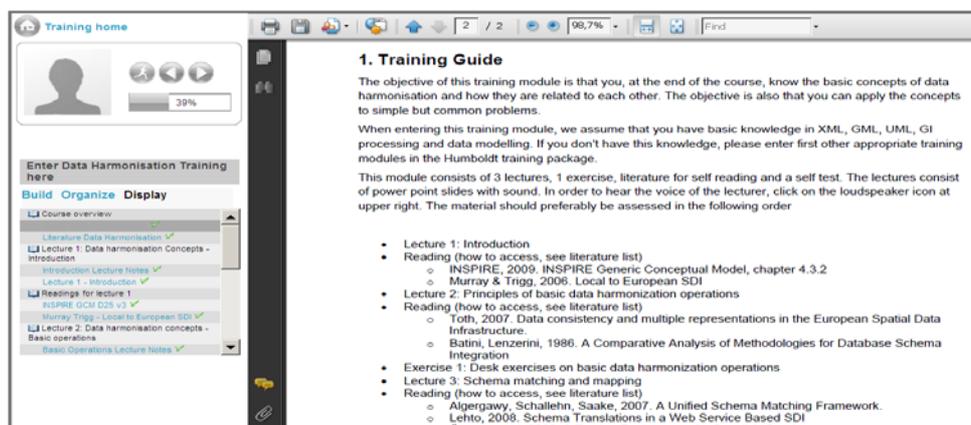


Figure 8 - learning path of the course Data Harmonization

The VESTA-GIS Platform is accessible upon registration, from the course metadata in the Catalogue, after having contacted the course provider and agreed the participation to the course.

The Geoportal

VESTA-GIS makes available a Geoportal to support the training on GIS and the development of hands-on exercises and test-case.

The Geoportal is connected to some courses in the VESTA-GIS Catalogue dealing with web services, metadata and INSPIRE implementation, and is accessible from the VESTA-GIS e-learning platform dedicated to host the courses above.

VESTA-GIS Geoportal completes the structure of the VESTA-GIS Training Framework, representing a further tool to help and facilitate the learning in a GIS/SDI environment through practical application and real implementation of a use case.

The VESTA-GIS Geoportal is based on the tool GeoNetwork, which is a free and open source catalogue service based on the OGC specification for catalogue services (CSW). It is designed to manage geographic information and its main features are metadata search and edit functions. It also provides an interactive web map (Intermap) for illustrating maps, and uses Geoserver, an open source software that allows users to share and edit spatial data.

It is here provided a brief overview of the main features of the Geoportal, which are:

- Metadata search
- Visualize and download spatial information
- Metadata upload

Metadata search

When accessing the front page of the Geoportal, we will arrive to the one in figure 9a. If we want to search for metadata, it is possible to do a simple free text search, or an advanced search. In the advanced search, we can for example perform spatial queries. In this example, we search for data that covers a specific area in Sweden (figure 9b).

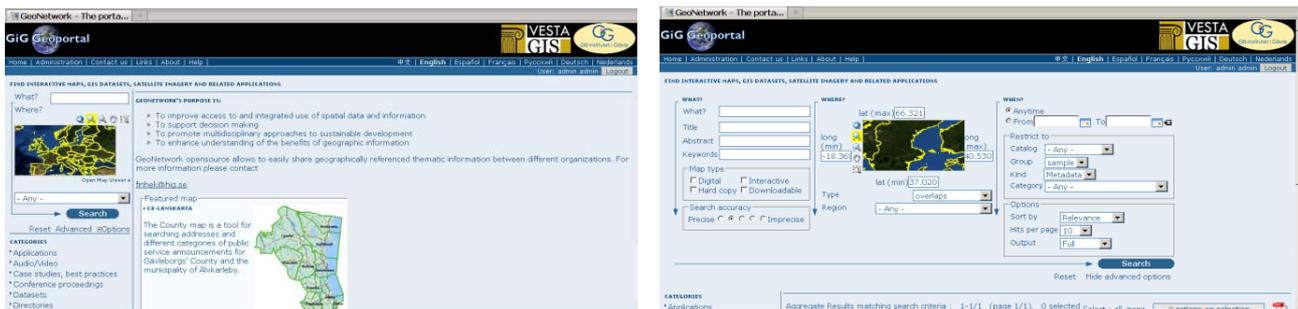


Figure 9 - a) Geoportal front page, b) advanced search

The result from the search in the given area shows brief information about a county map covering the Gävleborg County in Sweden (Figure 10a). In the geoportal, metadata for all datasets are either stored in ISO 19139, or 19115, which are metadata standards for geographic information. If the information seems relevant, we can choose to view the full metadata, as shown in Figure 10b.



Figure 10 - a) overview of a County map of Gävleborg, Sweden, b) full metadata about the map service

Visualize and download spatial information

If a Web Mapping Service (WMS) is available, we may then examine the data in more detail. In this example we load the data into the web map (Figure 11). When the WMS is loaded, we may select the layers we want to be visible in the map, and thereafter inspect the data.



Figure 11 - Interactive web map in Geonetwork

If a Web Feature Service (WFS) is provided in the metadata (Figure 12), it is possible to download the data from that service.



Figure 12 - WFS resource given in the metadata

Upload metadata

Administrators may upload metadata stored in, for example, XML (Figure 13a), and they may choose Stylesheet, validation of metadata and sort it into different categories. If we do not have metadata stored in one of the valid formats, we can also create it directly on the geoportals (Figure 13b).

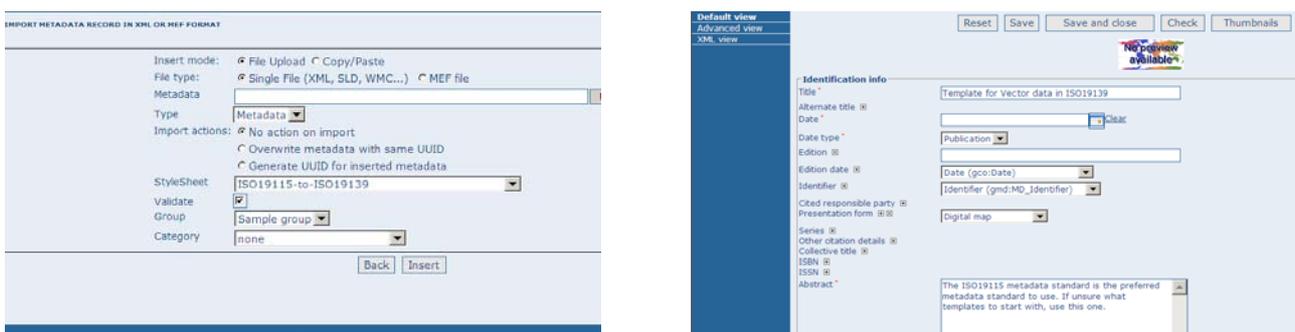


Figure 13 - a) upload metadata from file, b) create new metadata using a form

THE VESTA-GIS MOBILITY FRAMEWORK

The VESTA-GIS Mobility Framework is a tool to promote mobility on GIS within the organisations participating in the Network. As a matter of fact, VESTA-GIS advertises available grants of placements available in Europe for university students/graduates/researchers applying individually 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 are undertaking post-doctoral studies are also welcome, as well as those undertaking placements as an integral part of their vocational training.

The mobility by itself is not funded by VESTA-GIS but by the organisations offering the placements. In such a context, VESTA-GIS behaves as a "job portal" with the aim to advertise placements opportunities on GIS and to match offer and demand for those.

All VESTA-GIS member organisations and individuals are invited to use the Mobility Framework to advertise available placements opportunities or to send their profile and to candidate for a mobility.

The main tool of the Mobility Framework is an on-line database collecting offer/demand of placements, that is constantly up-dated.

The on-line database is organised in two levels (Figure 14):

- Candidate level, upon free registration
- Host level, only available to the VESTA-GIS Members.

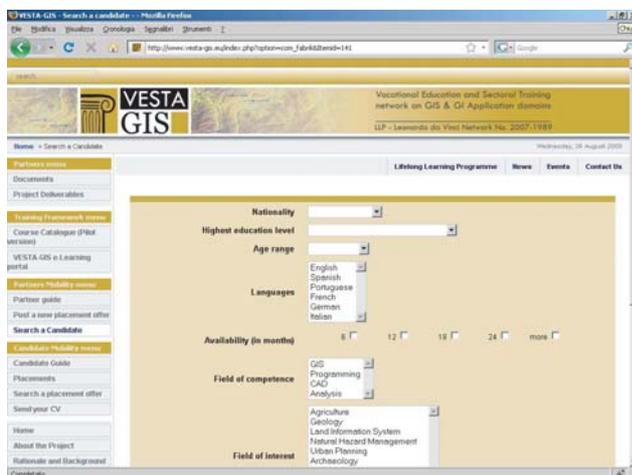


Figure 14 - The registration form to access the Mobility Framework

In the following, a practical guide of how to use this tool and its functionalities.

The first two features (*Search for a candidate* and *Insert placement offers*) are reserved to users of "Hosts" level, while the others are also accessible by individual candidates.

Following the database features are presented in detail, as well as the possible use cases.

Search for a candidate use case (reserved to Hosts, see Figure 15)

1. The Host logs in the system and clicks on:

Search a Candidate



2. He performs a search by setting up some criteria in the "Search a Candidate" form
3. If he finds some profiles who fit his needs, the Host asks the VESTA-GIS Mobility Office for the extended CVs of the selected candidates
4. VESTA-GIS sends the CVs to the Host
5. If any CV fits the Host's needs, he directly contacts the persons and notifies the negotiations to VESTA-GIS

Figure 15 - Search for a candidate form

Insert placement offer use case (reserved to Hosts, see Figure 16)

1. The Host logs in the system and clicks on:

Post a new placement offer

2. He fills the web form for a new placement offer including the following pieces of information: name of company, country, duration, keywords on the job, grant availability, other facilities in kind, required knowledge and skills, tentative starting date, free text on the job offer
3. Placement offer notification is sent to VESTA-GIS Mobility Office
4. The Administrator validates the placement offer
5. The new offer is published in the placement list

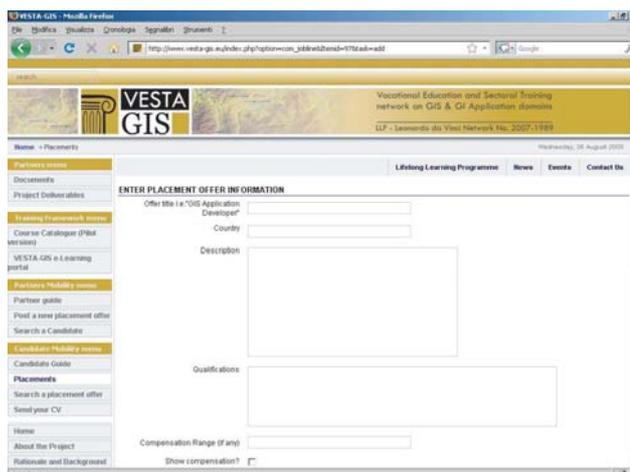


Figure 16 - Post Placement Offer

Placements

The Placement offers list is accessible both by Hosts and by Candidates and placement can be sorted by date, application field and other parameters.

Search and apply for placements use case (reserved to Candidates)

1. The Candidate logs in the system and clicks on:

Search a placement offer

2. He can browse the placement offers list or use the search a placement offer facility
3. If he is interested in a placement offer, he applies for it
4. He fills the profile information boxes (age range, education level, domain, country, language, etc..) and upload his CV, drafted according with the European CV template (Europass)
5. Application for a placement notification is sent to VESTA-GIS Mobility Office
6. Candidate's profile and CV are sent to the placement offerer.
7. The offerer contacts the candidate
8. He informs VESTA-GIS Mobility Office about negotiations
9. In case of no deal, VESTA-GIS Mobility Office proposes the candidate to make his profile visible for other placements
10. If he agrees, he is added to the Candidate's database

Upload CV to the VESTA-GIS database use case (reserved to Candidates, see Figure 17)

1. The Candidate logs in the system and clicks on:

Send your CV

2. He fills the profile form (age range, education level, domain, country, availability, etc..) and upload his CV drafted according with the European CV template (Europass)
3. CV uploading notification is sent to VESTA-GIS
4. VESTA-GIS Mobility Office validates the Candidate profile and CV
5. The Candidate profile and CV are added to the Candidate's database

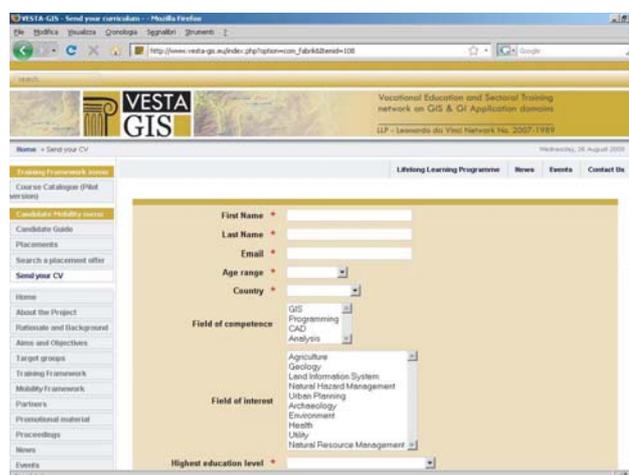


Figure 17 - Upload CV form

THE VESTA-GIS ENDORSEMENT

ECVET is a European instrument that supports lifelong learning, the mobility of European learners and flexibility of learning pathways to achieve qualifications. It was adopted by the European Parliament and by the Council last 18 June 2009 and is currently in a phase of progressive implementation.

ECVET aims to facilitate the transfer, recognition and accumulation of assessed learning outcomes of individuals who are aiming to achieve a qualification. It is based on the definitions, principles and technical specifications, set out in Annex I and II of the Recommendation of the European Parliament and of the Council. Furthermore, it should be based on common principles for quality assurance in Vocational Education and Training.

The ECVET methodology is substantially based on the description of qualifications in terms of units of learning outcomes with associated credit points. The transfer and accumulation process employs complementary documents such as learning agreements and transcripts of records and follows ECVET guidelines. As in the Annex I of the aforesaid ECVET Recommendation:

'Unit of learning outcomes' (unit) means a component of a qualification, consisting of a coherent set of knowledge, skills and competence, that can be assessed and validated

'ECVET points' means a numerical representation of the overall weight of learning outcomes in a qualification and of the relative weight of units in relation to the qualification.

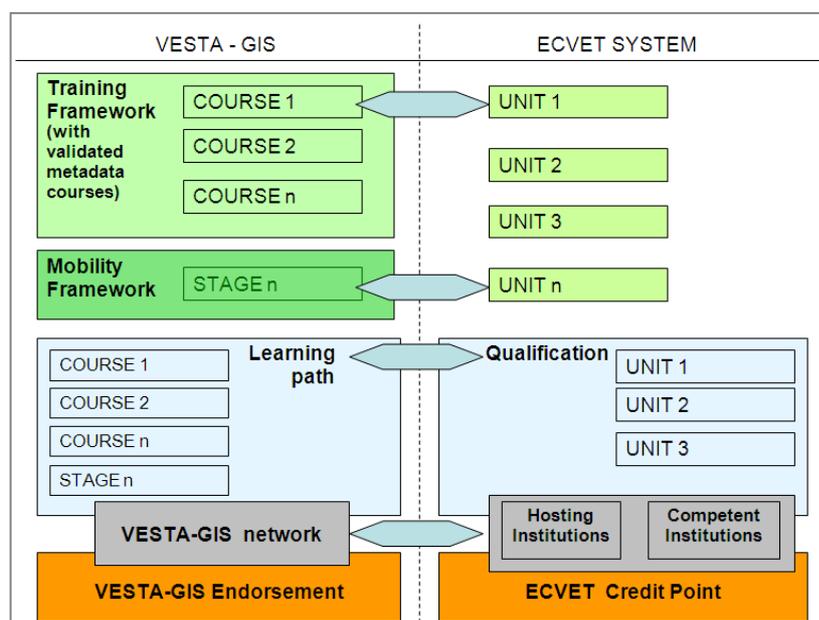
'Qualification' means a formal outcome of an assessment and validation process that is obtained when a competent institution determines that an individual has achieved learning outcomes to given standards.

VESTA-GIS has a close correlation with the mentioned principles of ECVET system. It is assumed that:

- ⇒ the *learning path* leads to the achievement of a "qualification";
- ⇒ the courses which support the *learning path* can be identified as "units". Each "unit" is documented through metadata and the learning outcomes it contains can be assessed and validated through a process of attesting officially achieved results with awarding of qualifications;
- ⇒ the "**VESTA-GIS Endorsement**" is the real validation of *learning path* through a process of confirming that principles defined by VESTA-GIS framework has been applied towards the acquisition of a qualification. The endorsement is referred to a certified path built on quality criteria, not to a learner .

The process of the VESTA-GIS Endorsement includes two official documents related to two different steps:

- ⇒ The Learning Path VESTA-GIS Endorsement
- ⇒ the Certification of attendance to a VESTA-GIS endorsed learning path (see Annex II).



The 'VESTA-GIS endorsed learning path' is the document that contains detailed description of a certain learning path, with all the courses included in the path.

The second document is the Certification of attendance to a VESTA-GIS endorsed learning path.

This document, as above specified, is an endorsement over a certified learning path, that guarantees the quality of a certain learning path.

It recognises that the learning path attended by the learner is endorsed by VESTA-GIS Network.

Figure 18 - Comparison between VESTA-GIS and ECVET system

THE VESTA-GIS CONSORTIUM



GISIG - Geographical Information Systems International Group, Italy
<http://www.gisig.it>



Högskolan i Gävle - University of Gävle, Sweden
<http://www.hig.se>



ICCOPS - Landscape, Natural and Cultural Heritage Observatory, Italy
<http://www.iccops.it>



Z_GIS - Centre for Geoinformatics, Salzburg University, Austria
<http://www.zgis.at>



Sapienza - University of Rome, Italy
<http://www.labsita.org>



SADL Katholieke Universiteit Leuven, Belgium
<http://www.sadl.kuleuven.be>



IREN ACQUA GAS SpA, Italy
<http://www.irenacquagas.it>

VESTA-GIS is a Network open to all the stakeholder organisations operating in the specific field. The VESTA-GIS Network currently counts more than 90 members.

An organisation having interest in becoming a member of the Network simply has to fill in the adhesion form available at the VESTA-GIS web site (www.vesta-gis.eu) and sends it back to the VESTA-GIS Project Office (office@vesta-gis.eu).

Organisations participating in the VESTA-GIS Network benefit of the possibility to have access and/or make accessible/advertise training courses and material in an e-learning environment, as well as the possibility to promote and participate in people mobility/exchange programmes inside the Network.

Newsletter Editor



GISIG - Geographical Information Systems International Group (VESTA-GIS Office)
Via Piacenza, 54
16138 Genova, Italy
Tel: +39 010 83 55 588 - Fax: +39 010 83 57 190
E-mail: office@vesta-gis.eu - URL: www.gisig.it