

E-Learning system to enhance local competences

Antonella Reitano
Engineering Faculty, University of Calabria
0039 984 492270

A.Reitano@unical.it

Alessandro Astorino
Engineering Faculty, University of Calabria
0039 984 492270

astorino@hpcc.unical.it

ABSTRACT

The research analyzes an e-learning system addressed to the engineers of the Region of Calabria and aimed at enhancing the local competences, through the continuous training and the transfer of great value services, and urging, therefore, the creation of new entrepreneurs in local area and/or making easier the access in the labour market.

Key words

Computer Networks, E-Learning, engineers, competitive advantage.

1. INITIATIVE

The project ATENA aims at enhancing the Calabrian Engineers through a training and informative process which takes advantage of innovative solutions of learning, information and communication such as e-learning, Business Intelligence solutions and e-business.

The main tool to achieve such objectives will be the Services Centre, a technological infrastructure which will be made operative through the using of innovative methodologies and tools of the Information Society which will be available to the Engineer Association of Cosenza, as a means of further qualification.

In practice, the solutions and the services provided with this project will be supplied through the access to a Web portal which will be the primary form of access and inclusion of local engineers in the labour market.

The Services Centre will be at the proposer's disposal and will be an essential part of the training process of engineers, acting as a virtual bridge between the academic world and the working realities.

1.1 The project partners

The nature of the great additional value of the services offered, needs technical-economic competences to realize the project and, therefore, the combination of different and complementary competences which in reality aren't often referable to only one subject. To this end, the project will be realized in partnership by research bodies and private companies which, having a great experience in supplying the enterprises with services and technical competences of great value, will cooperate in order to realize the Atena platform.

1.2 Starting situation and problems at the basis of the project realization

The Atena project aims at supporting the employment of the young engineers of the Province of Cosenza at first and then of the young graduates of the Region of Calabria. To this purpose the business knowledge and the additional services, which will favour the access to the labour world, will be offered through an e-learning platform making easier, therefore, the access to these services of a large number of graduates.

The necessity to propose the Atena project is the answer to an uneasy situation of the young graduates in Engineering in the

Region of Calabria who, as shown by a recent market analysis, don't succeed in expressing completely their potentialities with the consequent exploitation of the human capital available in the region.

In general, the Italian situation is not flourishing; the Italian graduates have got more hopes to find a job, but they are often obliged to accept a job which doesn't correspond to their own degree.

The risk of intellectual underemployment doesn't depend, according to the report, on a too little versatile market or on the human capital not too much willing to move: just imagine that only last year the Italian researchers working abroad were 1300. It is the system as a whole which proves to be weak, particularly as regards three aspects:

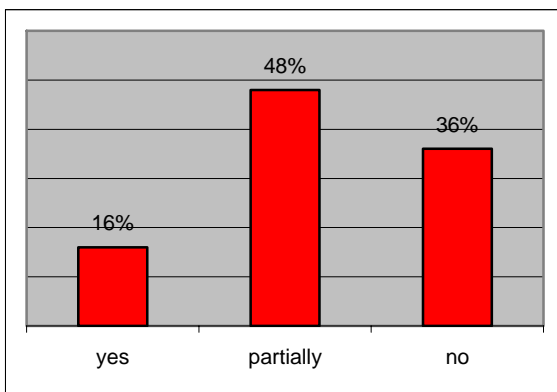
- a short demand for human skilled capital (little inclination towards innovation above all from the PMI);
- the strong territorial unbalances regarding the job offer quality (in the South the employment increases only for the professional figures with low intellectual capital density);
- the malfunction of the demand-supply mechanisms which "in spite of the attempts to make these mechanisms working during these last years, is high" and moreover it goes with "a substantial lack of communication between training courses and productive system".

In Italy the engineers, registered in the professional associations, are 165.819. In Calabria they are 6.753 and half of them are in the province of Cosenza.

A more accurate survey aimed at monitoring the degree of satisfaction of the young engineers has been made by Inarcassa regarding its registered members, and by the Engineer Association of the Province of Cosenza, thanks to a survey realized, in August and September 2004, with a questionnaire proposed to 400 registered engineers in the period from 2000 to 2004.

A not very bright situation, regarding the satisfaction rate with the present job of the engineers in the province of Cosenza, comes out from the survey. In fact almost half of the interviewers (48%) declares not to be satisfied with his job.

Figure 1 *The satisfaction rate with the present job of associated*



The causes of this dissatisfaction are referable to economic reasons (insufficient remuneration for the 22%), business relations typology (temporary job for the 25%) and a non optimal use in comparison with the competences owned (underutilization for the 21%).

1.3 Objectives of the project

The Atena project aims at optimizing the competences of Calabrian engineers through a training and informative process which takes advantage of innovative learning solutions, information and communication such as e-Learning, the Business Intelligence and e-business solutions.

The last purpose of the Atena project consists in the increase in visibility and awareness of the professionalism of the Calabrian engineers at local and national level, with positive effects on the regional employment rate and with direct and indirect effects on the same engineers in view of their inclusion in the labour world. The attainment of this goal will be guaranteed by the realization of specific objectives as:

- creation and optimizing of specific competences
- continuous updating of knowledge
- creation of network
- cross point Demand/Supply.

The **main tool** to reach such objectives is a specialist training activity and a web infrastructure (e-learning) aimed at transferring new knowledge. The services will be supplied through an equipped "Services Centre" which will give the possibility to supply:

- high training courses
- specific courses on concrete cases of e-working
- research services and monitoring of on-line information (on-line business intelligence)
- service for the participation in on-line communities
- distribution on-line of informative and educational material
- management and optimizing of the engineers' CV.

Specific objective of the **High Training courses** and of **concrete cases of e-working**, offered in **e-learning** mode, will be the one to supply, through practical personalized modules, skills and tools useful for an immediate and suitable inclusion in the labour world and in detail:

- to supply skills and favour the development of competences for the constitution of local spin-off on technologies and/or innovative services;
- to transfer adequate knowledge on strategies of market access and the management of enterprise;

- to supply adequate skills on the financing opportunities through the access to national and international notices;
- to offer a useful reference to stimulate the offer of added value services;
- to stimulate the entrepreneurship supplying practical cases of success in e-working which can act as an incentive to the establishment of local enterprises which work in Internet;
- to find out models of remote work which are sustainable and can represent a useful example.
- Inherent objectives of the supply mode chosen, the E-Learning, are:
 - creation of personalized learning courses;
 - continuous updating;
 - to favour the creation of an exchange community;
 - cost reduction (social-economic) of inclusion in the labour world.

Specific objective of the **research and monitoring of online information services** will be the optimizing of the information research in terms of resources used (time and costs) and quality of information, which is reliable, filtered and updated and to favour the job opportunities for the Calabrian engineers, in detail:

- to supply the engineers with an information heritage important for the widening of their professional skills on the Internet, organized and selected;
- to offer updating tools continuously on interesting themes;
- to come up to the necessity of research and selection of specialist information on line in a fast and complete way;
- to create a common meeting space between Demand and Offer of skilled labour and to favour remote work opportunities;
- to create a contact network between the Calabrian professional environment and the national one: know-how sharing;
- networking with Professional Associations of national, European and international engineers;
- to make easier the common participation in European and National projects, tenders and notices;
- to come into contact with computer mode and tools to manage the "knowledge management" in order to acquire and learn it, but above all to be able to organize and spread it.

1.4 Architecture of the Atena platform

The Services Centre will be formed by an highly modular, graduated, extensible and services-oriented applicative framework which will be extended and appropriately personalized in order to allow the achievement of the functional objectives of the project.

The infrastructure realized will have, therefore, features which will make possible the addition of services and the extension to other possible beneficiaries.

As already said, the Atena platform will have the capacity to supply the following services:

- training
- research and monitoring
- cooperation and communication
- diffusion and e-shop.

Figure 2 Conceptual architecture

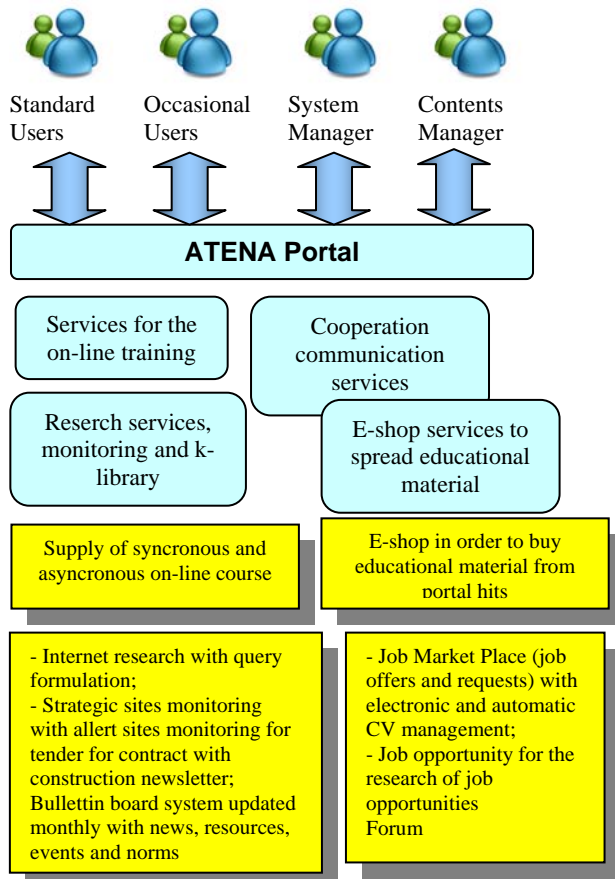


Fig.2 shows an high level view of the services that the Atena platform will supply through the web portal. We have recognized four typologies of users: Standard Users who are the engineers who make use of the services supplied by the portal without having the possibility to manage also the creation, change and erasure of the contents inside the system; Occasional Users who can only have access to the e-shop and popular services; Systems Administrators who manage the portal and the various server (hardware and software) which will be used for the deployment of the platform Atena; Contents Managers who have the prerogative which concerns the management of the “e-content” inside the knowledge library and the possibility to publish educational courses, job offers, etc...

1.5 Expected results, economic benefits and sustainability of the project

The expected results of the Atena project will have different nature and impact. In general the direct results of the project can be synthesized as follow:

- increase of the employment rate in Calabria;
- flight reduction of the “intellectual capital” from the Region of Calabria;
- to make easier the setting up of local entrepreneurial activities, among which innovative and technological spin-off;
- promotion of local activities in e-working mode;
- know-how exchange at intraregional and national level.

The achievement of the above results will contribute to reinforce the productive local context and to optimize in situ the competences of the intellectual capital which, in a more

and more services-oriented economy, will represent the real strategic incentive to compete in national and international area and to create welfare.

The realization of the Services Centre, will make an equipped structure available locally to the engineer association of Cosenza and will guarantee the sustainability of the service. In particular, in the University of Calabria a modular applicative extendible framework will be prepared for the experimentation of service.



During the realization of the project the Service Centre will be tested by the enrolled engineers of the Province of Cosenza; it will have such features as to let presume a long term sustainability of the Centre through the services sale to the engineers interested from a subject appropriately constituted; an appropriate business plan will point out the peculiar aspects of the Centre in terms of economic-financial management.

Besides the Centre will have such characteristics as to let foresee an extension even to other professional associations and with larger territorial users.

1.6 Specifications of the Atena Project

We presume to make available the functionalities which will be described with a Portal Application and to allow the registered members to access to Intranet by a smart card together with a traditional authentication procedure (Userid and Password).

1.7 The Atena portal characteristics

The Atena portal introduces the following functional characteristics:

- It is necessary to arrange a section in which it will be possible to have the up-to-date list of all kind of invitations focused to engineers activities. The updating of the section contents has to be done both in manual way (insertion of invitations to tender and notices with special procedure) or in an automatic way through the technologies considered more suitable (RSS for instance). Inside the same section it will be necessary to arrange a section linked to the new technologies in which it will be possible to insert articles and news linked to the world of the New technologies for a rapid updating and to have useful reference regarding the state of the market and the research.
- It is necessary to arrange the mechanism of the certified mail so that information can be sent and received in real time with documents that have legal value for public and private bodies.
- Procedure of curricula census of the registered members in the provincial Association of the Engineers of Cosenza. Every engineer's CV must be memorized using a special computer procedure that allows to standardize the personal and professional information of every registered members. The same procedure should allow then to manage these

information. Particularly it should be necessary to update the CV to add training courses organized and certified by the same Association. It is important to succeed in establishing the competences certification mechanism of the registered engineers in the Association. Every sector of the Association should have a special committee that establishes the competence which must be certified in a more or less analytical way.



The Certification of the Competence can be obtained by all the members registered in the Association of the Engineers of the Province of Cosenza who voluntarily apply for it and who have the necessary qualifications. Here is what the process scheme could be:

- Application
- Registered member
- Submit the application

Qualification	
Establishment	Experts Group
It checks data and qualification	It verifies the competence

- Certification
- Association
- It issues Certification

- Publicizing
- Establishment
- It sets up Data Bank

Herewith described the various phases of the process:

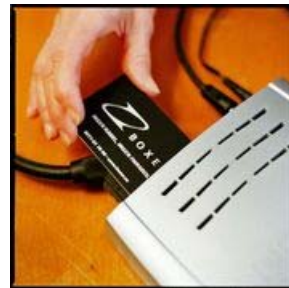
1. **Qualification:** It is the control, investigation and acknowledgement process, made by Experts appointed by the Association, of the acquired professional competence that is of the specialistic skills acquired through the experience in a particular role. More qualification levels, related to the years of experience reached, can be foreseen.
2. **Certification:** With the Certification the Association certifies the acquired professional Competence; The names and the competences of the certified Engineers are collected in a data bank.
3. **Publicizing:** The competences lists are periodically publicized by the Association. The names will be made known in view of a specific request, examined

closely, with the consent of the parties and in compliance with the privacy regulations.

Since the certification of the competences also represents a service to the registered members to protect their professionalism, it is necessary to foresee a contribution of first registration and in the following years, an annual quota of permanence. The amounts will be determined by the Board of the Association.

As for the “costs standard” for the management of the operational functionalities, it will be necessary that all the administration contents procedures will have to be possible with the help of a private administration section of the portal. All this in order to maintain the costs low and to evaluate a special group inside the registered members who can carry out the updating of the procedure.

In order to minimize the external intervention in the updating of the portal content, it will be necessary for all the contents to be considered variable in the time, and therefore which can be updated and modified inside the administration section of the portal, or rather a Content Management System is used (CMS).



As for the fruition of the videos of the courses organized by the Association, the terrestrial Digital is advisable as the technology for the contents diffusion.

(However, the technological aspect of the platform linked to the media must be investigated). In reality, after the last meeting with some experts who would guarantee the contents production and in the view of the costs optimization, it might be necessary to use other channels and technologies of contents diffusion that would guarantee the simplicity of use and even a greater safety in the contents access .

The system must satisfy the rules of good planning and must be in accordance with the safety rules, not only those imposed by the Law on the Privacy but to be enough sure from undesired external accesses.

The portal should supply the registered members with the payment by credit card. Such payment should concern the registration in the training courses and the annual quota.

2. CONCLUSIONS

The realization of an e-learning project on the inside of an organization as the one of a professional association, is based on the importance of introducing a long life training, analyzing experiences and cases in order to illustrate all the possible difficulties met and solutions brought. This project will be useful to understand the choice of particular teaching methods and their added value on the professional activity.



With the development of the Atena system it will be possible to carry out careful and punctual research in the analysis which will give several cues and practical examples to everyone who deals with the e-learning theme in order to develop the intellectual capital.

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