

Centre of Excellence in Information Society Technologies the Role of the University in Capacity Building Outside the University

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I. INTRODUCTION

Structural changes in the Bulgarian society and the process of alignment to the European Union require development of flexible administrative structures that are able to adopt and renew permanently their management and personnel capacities according to the new realities. A range of important features of the socio-economic life as a whole should be considered:

- massive information saturation, performed by plenty of electronic mediators and technologies;
- new qualitative requirements to the human resources, their skills, working style and motivation;
- need of permanent self-development and renewing – permanent training and retraining of the personnel.

In accordance with Strategy for Building Modern Administrative System of the Republic of Bulgaria, the State and local administration should serve the citizens of the country and the national business more efficiently. The services provided by various public administration units should be more easily accessible, more comfortable, user-friendly and low-cost for the tax-payers. The realisation of the National Strategy for Transition to *Information Society* shall lead to harmonisation of the relationship between administration, population and business and to augmentation of the democratic control of the society on the management of the country. The Government envisages development of a national public administration information system as part of the national information infrastructure. The Council of Ministers is to prepare a Uniform Act for the Principles and Universal Standards for Operation in All Public Administration Units.

From the other hand, new educational models that support flexible and efficient educational alternatives are needed in order to support individuals to successfully integrate themselves in the transforming society. Most of the educational policy makers and practitioners have to be trained in applying modern methods for planning, organisation and management of education, for curriculum and instructional design and use of media and for implementation of educational innovations, including distance delivery of education.

Section 1.01 As a result of the overall economical unstableness the budget for the educational sector is significantly reduced. In this situation the governmental educational institutions have to function with very limited resources - human, technical, financial. This calls for more flexible educational solutions, including restructuring and re-designing the education and training offers of these institutions towards higher efficiency. Employing the potential of already existing technological infrastructure is highly desirable.

Combining the methods of new educational technologies and Communication and Information Technologies (CIT) while using the experiences of the EC counties can greatly help in the above context. In particular, telematics-based distance education is an adequate option for higher and further education, which provided that the necessary conditions - social background, technological infrastructure and methodology - are available. Fortunately, the last is becoming more and more a reality.

The latest technological, industrial and social changes in the Eastern European Countries (EEC) are influenced by the new technological developments and mark the features of an *Information Society*. Europe is getting ready to meet the challenge of this society and a number of professionals and experts are trying to answer a multitude of questions in this connection. Among the main priorities of the European Commission related to the Information Society is distance learning. In today's

dynamic society people need to learn all life long. Gradually a new *learning society* investing in knowledge appeared.

Considerable changes are taking place in education where the printing technology gives up more and more territories to the multimedia, hypermedia and communication technologies. This trend can also be observed in the field of distance learning where the tools and services of the Internet become more and more a preferred technological platform. A number of EC programs have been initiated to provide ground and support for research and developments in flexible and distance learning.

The development of the methods and tools of the distance learning via Internet is synchronous with the overall trend for globalisation of education world-wide and the appearance of new forms of international co-operation. For example, the European Association of Distance Teaching Universities is responsible for the tutoring of over 325, 000 students. A great number of these universities move from the classical form of distance learning based on printed materials and postal services to new flexible forms of education with effective use of the new technologies.

Never before the education was so significant factor for society ability to restructure, control and develop. That is why together with traditional face-to-face learning distance learning become more and more popular as method of organization of the educational process. Web-based learning become complete environment, proposing exceptional opportunities for learning personalization and ensuring variety of communication services and large number of additional utilities.

The significance of Web-based distance learning origin from several key factors – economics, politics and technologies:

- The *economics* growth strongly depends from professional qualities of human factor, which increase requirements for institutions, providing education.
- The *politics* of further educational changes enlarges its importance and its character - certification programs and courses, verifying professional competence.
- The rapid *technologies* development is one of the main reasons of growing need for education and training, but and the same time tool for enhancing efficiency of its implementation.

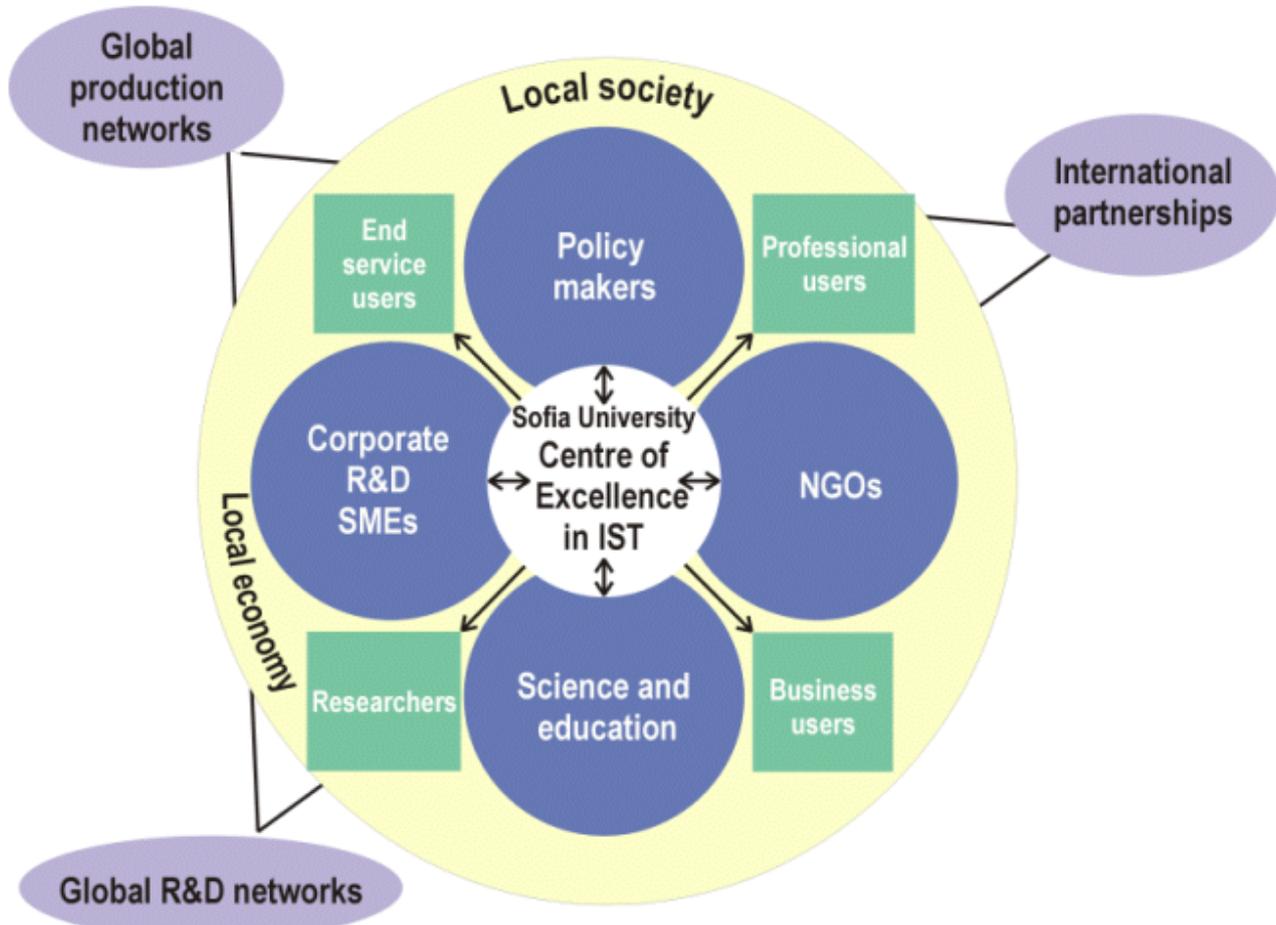
Web-based distance learning is not the solution for all educational, further educational and training problems, but it is proposing additional capabilities for education of more people, who easy and effectively can be train on their work places or at home. It can be used in Universities as well as on-the-job training. In addition it increases effectiveness of training process relative low prise in comparison with traditional forms of education and training.

II. CENTRE OF EXCELLENCE IN INFORMATION SOCIETY TECHNOLOGIES

Sofia University, among others organisations, should re-engineer all its activities, in order to meet the challenges of the Information Society (IS). The new Information Society Technologies (IST) should no longer be an afterthought in forming the general university strategy, but the actual cause and driver. An opportunity for harnessing the IST to streamline the university structure and to control the flow of information would make many of the academic activities more cost-effective. This would allow the University to bring together the theoretical and applied interdisciplinary research in IST and their applications in the natural, social and economic sciences in such a way that the University would put its capabilities to the service of the economic and social needs of the region and the country in its efforts to meet the standards of accession to the European Union and to realise the benefits of the IS for Europe (including the countries in pre-accession phase to EU) both by accelerating its emergence and by ensuring that the needs of individuals and enterprises are met. For that purposes a new structure – Centre of Excellence in Information Society Technologies – was created. We feel this is a timely initiative corresponding to the European Policy for the development of the Information Society.

The Centre for Excellence in Information Society Technologies is an interdisciplinary research and training institution of Sofia University, motivated by the challenge of supporting the development, introduction and wide use of Information Society Technologies (IST). This challenge is addressed by performing high-quality research on IST-based systems, on their user-friendly environments, and on design techniques and enabling technologies. The Centre of Excellence in IST is designed as a flexible junction between the university, the academic community, local community, industry & SMEs, NGOs and policy makers co-ordinating their efforts at spreading the overall use of and excellence in IST.

The four associated groups of partners – NGOs, science and education institutions, policy makers and SMEs are acting both as contributors of inputs and as final users, the outputs also serving a wider range of researchers, business and professional users as well as various final service users. The research activities performed by the staff of the CEIST have a pivotal role in integrating



awareness and understanding of IST, as well as their implementation into the Bulgarian Public Society. Regional development, local economic development and issues of cohesion are among the main goals in research, analysis and development of the CIST in the last years. Strong efforts have been applied in promotion of global society development using the new technologies and for local community development initiatives. The research activities of the Centre offer different ways how a large number of national organisations, NGOs, SMEs and local communities can best benefit from new IST. The Centre aims at assisting the processes of liberalisation and standardisation of the social environment and its harmonisation with the best European practice.

The Centre brings together the theoretical and applied interdisciplinary research in IST and their applications in the natural, social and economic sciences. CEIST provides its capabilities at the service of the economic and social needs of the region and the country, in its efforts to meet the standards of accession to the European Union.

As a result the research on IST-based user environments focuses on the assessment, embedding and use of these systems in existing and evolving organisations, including society at large, government, industry, business and private life. In order to address this broad scope, the CEIST crosses the traditional boundaries of research disciplines, and research projects are performed by multi-disciplinary teams. Thus the CEIST appear as agent of change which help the University restructure its activities on the base of IST and better achieve its main mission and goals. According to some experts education in the Information Society will be *asynchronous in time and space, interactive* and based on *virtual restructuring of the university and school area*. The success of separate individuals and organisations in the global economic and intellectual competition depends on their ability to transform quickly and in the right moment the available information into useful knowledge that can be used for taking important management decisions. Employers demand that their workers are able not only to memorise facts, but rather to learn new methods, new techniques and professional skills.

One of the typical CEIST activities, performed under the Tempus IB_JEP-14047-1999 Project, will be described next.

III. TEMPUS PROJECT IB_JEP-14047-1999

A large number of public administration employees and other specialists from different institutions have to be trained according to the new standards. Development of a flexible system providing the specialists in public administration, banking, employment services, etc. with knowledge and skills in these areas could facilitate the process of approximating, implementing and enforcing the EU accession. Sofia University in co-operation with all other partners in the TEMPUS Project IB_JEP-14047-1999 Consortium ensured an inter-disciplinary training team capable to provide the necessary training and expertise according to European standards.

Sofia University through the Faculty of Mathematics and Informatics (Department of Information Technologies) and Faculty of Classical and Modern Philology (Department of PA and DES) in co-operation with the University Computer Center and other university units develops this project idea on the basis of already steady functioning education/ training system. As a result of the project-oriented work during the last 5-6 years it has stable acting partnerships with West-European Universities.

The project aims are:

- to design and develop eight courses (subjects) intended for specialists in public administration, banking and employment services;
- to train 230 administrators and specialists from four national institutions - Ministry of Education and Science (MES), Ministry of Foreigner Affair (MFA), National Employment Services (NES), International Banking Institute (IBI);
- to ensure sustainable development of the new institution after the Project completes, and extend the scope of trainees toward other interested parties.

On a meta-professional level the above-mentioned areas of knowledge and skills are considered as critical for the specified target groups. Thus a process of cascade training will be ensured, the target group will be extended and the Centre of Excellence sustainable development will be supported.

The project corresponds mainly to Bulgarian Tempus priority for “organising training of specialists in areas of strategic importance for joining the EC Internal market” but it brings some added value related to other priorities areas as well.

As a whole, the Bulgarian University Partners and BILD were responsible for the course design, development and delivery. Sofia University paid a special role as the project co-ordinator and contractor, and had the main role in the dissemination of the project results through the newly established Centre of Excellence. Further dissemination activities are expected through the branch of the Centre of Excellence established at the University of Veliko Tarnovo.

The Bulgarian Target Organisations were mainly responsible for the selection and organisation of the student groups, and for the providing of the necessary work conditions for trained administrators. They also participated in the course design and development providing content experts and knowledge about their current needs.

The target institutions are facing deep structural changes in accordance with changes of the Bulgarian economy as a whole. That makes it necessary to train and re-train the state administration. That is why the project appeared well timed and tuned to the needs of the beneficiary institutions.

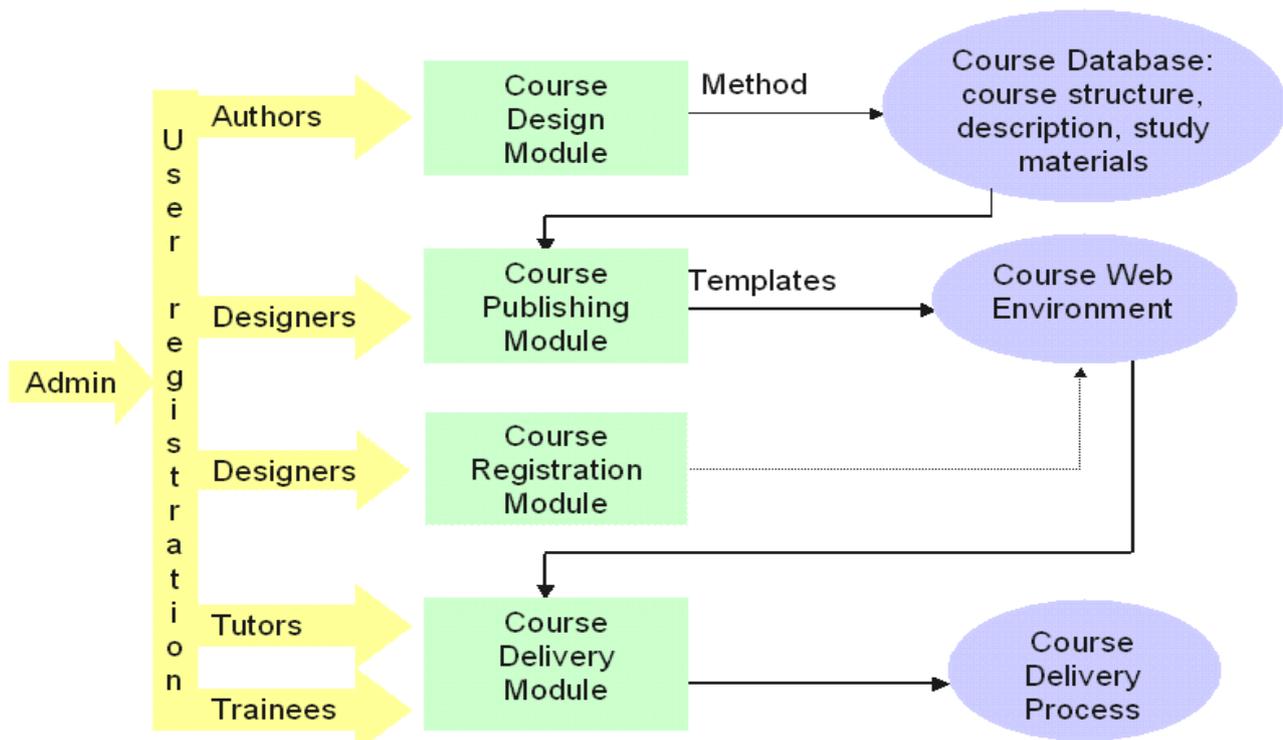
As the main contact points from the four target institutions were all involved in the development and implementation of their respective training plans, all the training provided through this Tempus project was fully coherent with the needs and plans of all the beneficiary organisations. The truthfulness of this approach was proven by the target needs analyses study.

4. DEVELOPED COURSES

The courses were developed in co-operation with a team of training experts from the national institutions MES, MFA, NES, IBI. The course areas and fields correspond to the target groups and the TEMPUS IB National Priorities. The main goal was to organize training of specialists in areas of strategic importance for joining the EC internal market, such as: public administration, banking, employment services, etc.

The courses were designed and delivered on the basis of an active use of IST. On a meta-professional level the above mentioned areas of knowledge and skills are considered as critical for the specified target groups.

The training activities within the project were organized in twelve courses.



All the training courses developed are tuned to some specific priority areas for the target institutions (*Human Resources Development - HRD; Fundamentals of Educational and Training Systems Design - FETSD; Fundamentals of European Law - FEL; Economics and Role of Banks - ERB; Specifics of Employment Services - SES; Information Society - IS; Bulgaria and Europe - B&E; Fundamentals of Public Administration - FPA*) including also some basic language and computer knowledge and skills (*Office automation - OA; Internet Technologies - IT; foreign languages*). They are tailor-made, formed from the subjects in a flexible way and mainly oriented for the distance delivery.

The EU experts monitored each course at a distance and by short visits.

The work on all the training provisions (curriculum, training materials, etc.) started after an elaborate investigation on the needs and interests of the administrative staff of the partner-organizations. The content of modules, as well as the way of course delivering was developed, on the base of the collected data and after a number of workshops and discussions with the Bulgarian partners, with a view to respond completely to the necessities requested.

All the courses were recognised by the respective Partners Institutional authorities as fully corresponding to their needs. The course development was a joint activity of the academic partners in the project in close cooperation with the specialists from the target institutions. For each course an expert group was created including at least one representative from Target Partner Organisations. Each expert group was well balanced and includes content experts, user representatives, Web design experts and education and training experts.

The curriculum is designed to meet the needs of the administrative staff of the Target Partner Institutions.

The content and methodology of the training courses are completely relevant to the plan for development of the human resources in the target institutions.

Representatives from all Target Partner Institutions studied carefully the prepared course materials and appreciate them as very high quality materials. Since representatives of all the target institutions participated in the process of clarifying the strategy for producing didactic materials, the materials developed fully correspond to the needs of the target groups.

First, Academic partners offered a list of courses, with their detailed outline (based on the results of the target groups needs analyses performed), to the target institutions.

Then, each Target Partner Organisation choose, according to their limit of trainees as stated in their letter of interest, the courses relevant for their needs, and for each course how many administrators to be trained.

Finally, each Target Partner Organisation selected the trainees from their own staff, based on their wishes, level of knowledge in respective domains, and Organisations' needs. They used for that

particular purpose specially designed questionnaires in order to make the best possible selection of trainees and their dispersion into well-balanced trainee groups.

The common course methodology is arranged around the standard sequence: presentation of course content – guided learning activities – self learning using provided additional learning resources.

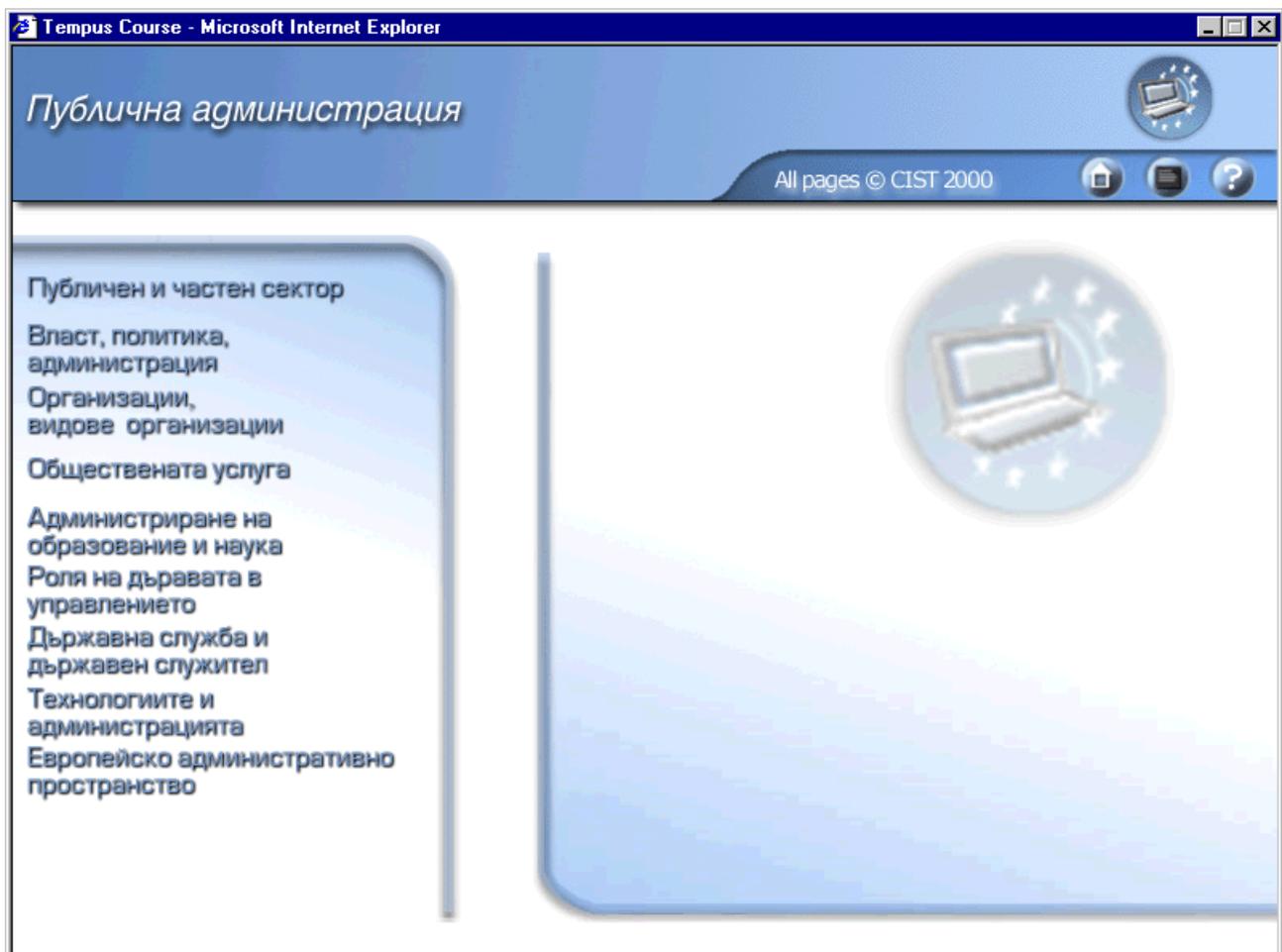
The following didactic materials are developed for the different courses: Teaching materials; Tests for self-control; Sheets for self-development; Instructional cards; Lists with information resources. In addition an electronic version of the materials has been developed and incorporated into specially designed Web site for distance learning.

In order to developed unified Web-based version of all courses there was prepared requirements for the preparation of the courses materials. Each course was described in the Word for the Windows or RTF file format. There could be either 1 file for the full course or one file for each course module (latter being preferable). Inside each file the different course components (modules, sections, topics, exercises, etc.) were distinguished using the set of tags (labels).

For each course the following set of files was prepared: files with the content of the course (text divided into modules, sections, topics), a file with the list of all key words, a file with the questions for the preliminary test and the final test for each module (if applicable), a file with the explanations for the preliminary test and the final test (if applicable).

The content of **each course** was divided into separate modules. **Each module** is an independent part of the course and can be studied separately. Each module include (some of) the following: Introduction, Preliminary test, Summary, Basic sections, Final test, Conclusion, References. **Each basic section** is oriented to last about 90 minutes, with about 30 minutes for doing different learning activities (exercises). The basic section can be subdivided into smaller units, called topics. **Each topic** pursues a specific goal or a task and includes at least one exercise.

The content of each course is prepared in electronic form and available in printed form to each trainee. Also each course has a dedicated Web site containing the all course content as well as a lot of interactive learning activities.



The number of participants targeted in the project is 231.

Except the Language Courses all the other courses are delivered in Bulgarian language.

Two of the courses (Internet Technologies and Office Automation) are delivered mainly face-to-face, but with predominant hands-on experience in the computer Lab. A lot of additional resources and learning activities are also available through the courses' Web sites.

Language courses are also mainly face-to-face, with additional resources available on the accompanying Web site.

All other courses are organised into training Modules about 2 months long. Each students group includes about 16 participants. In total for each training module the training proceeds 8 weeks: 2 weeks face-to-face, 3 weeks on the job, 5 weeks from a distance (using the course's Web site). Some of the training modules and different courses can be offered in parallel (for example face-to-face phase for one course/module together with distance mode for other courses/modules, etc.).

The different courses were offered to different groups of learners.

After courses completed the Centre of Excellence ensure continuing support both at a distance and on-the-job. We expect that the courses developed in the framework of this project will have a long-term effect. Since all the courses have their content developed in an electronic form, they could be easy updated in the future and as well as they could be delivered at a distance and available for a great number of people that are involved or not directly in the project. There will be an ongoing support on behalf of the trainers – e-mail communication, etc. The cascade method will also be largely used. Another guarantee is the fact that through some of the courses we are training the HRD staff in the four beneficiary organisations to know how to proceed with the training of their staff after the end of the project using all the training materials and resources as well as the (best of) trainees as the possible further trainers.

On the basis of the evaluated experience, gained during the project the Centre of Excellence offered its courses to a broader range of specialists later on. There are also opportunities to integrate the developed courses in different programs at Bachelor and MSc level, e.g. in European Studies, Public Administration, Informatics, Mathematics, Economics and Business Administration, etc.

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