

# **ICT-WEB-PROMS**

**Promoting ICT cooperation opportunities and policy dialogue  
with the Western Balkan Countries**

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**The Challenge of e-Learning in the WBC  
White Paper**

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## ***Introduction***

The fast development of Information and communication technologies (ICT) at the end of twentieth century affected all aspects of human society, especially concerning easy access to a huge scope of information. It busted advances in some “forgotten“ scientific approaches, marginalized others that were considered crucial only half a century ago, refreshed most of science, and initiated new approaches and a new way of life. Among others, it affected learning in the way nobody could have foreseen.

e-Learning is a new approach to learning, combining emerging technologies with the learning methodology. Nowadays it is a necessary part of quality assurance system at higher education institutions. Apart from the schooling system, it is also very important for company environment. The later is a consequence of influence of technology development to labour markets, which resulted in a process now known as Life-long learning (LLL). The main issue in e-learning is no more e-content, for there is a lot of content available on the web, but the implementation of psychological and pedagogical aspects in the supporting platforms. Therefore, the research and development (R&D) of e-learning is now directed towards the semantic web, digital libraries of complex and diverse content, interactive learning and learning games, new tendencies in social approach for academy and company learning.

The purpose of this paper is to present the state of the art of e-learning in the Western Balkan countries (WBC), from the aspect of the existing legislative and research potential, in the context of the Research and Technology Development Framework Programme (FP7).

## ***e-Learning in the framework of FP7***

The EU has recognized e-Learning as one of its challenges for WBC countries. As for the EU, there exists the programme for life-long learning (LLL), but none of the WBC countries qualified for involvement in it (the closest to the goal is Montenegro, to be involved in 2010). Therefore, the only remaining instrument for EU funded development of e-Learning in WBC is research in the framework of the FP7 Cooperation Theme 3, Work Programme 2009 and 2010.

The research direction for development of e-learning in FP7 is defined in Challenges 4.1 and 4.3 Digital libraries and technology-enhanced learning and Challenges 4.2 and 4.4 Intelligent content and semantics. In the first 4 calls, there were 55 research projects. The only project<sup>1</sup> with participants from the WBC is INTELLEO (Intelligent learning extended organisation, Challenge *ICT-2007.4.3*). The WBC participants in this project are INI doo, Belgrade, and Faculty of organizational Sciences, University of Belgrade, Serbia.

Research directions supported by FP7 until now were: new features of the semantic web, new solutions for digital libraries of complex and diverse content, innovations in interactive learning and learning games, new tendencies in the social approach for academy and company learning.

## ***e-Learning in the WBC***

E-Learning in WBC is not widespread. Legislative documents exist in all of the countries, and the documents recognize weaknesses, problems and possibilities of e-Learning development. However, implementation of e-Learning is costly, and therefore, it still relies on individual initiatives.

At the institutional level, there exist initiatives for the development of multimedia and/or e-learning centres for higher and professional education throughout the region, but the situation in lower education is far from good. The new laws on higher education, in accordance with the EU quality assurance system in higher education, recognise e-learning as equal to “classical” in-situ learning. It is assumed that higher education institutions will accept e-learning and develop it. In practice, most of the private higher education institutions accepted this as a source of income, but public ones lag behind in this process. The leaders are institutions that consider e-learning as a mean to attract more customers, and are developing it systematically.

Higher education institutions are, as a rule, in advantage concerning the development of e-learning, for most of them participated in either Tempus or WUS supported projects. Many of those projects were concerned with Curriculum Development (CD), and in such projects there was a possibility (if not the need) to develop e-content for new subjects. Furthermore, most of the institutions were participating in Quality Assurance System development, and again, one of the recommendations was to develop e-contents. The later is in the line with the process of accreditation of higher education institutions, what is a matter of existence for them, and consequently, they had to achieve certain level of content quality.

The existence of e-content is only a prerequisite for implementation of e-learning. The other side is knowledge delivery. For knowledge delivery, institution needs to deploy learning management system (LMS), preferably an adaptive one. Such systems are rare worldwide and their development is very expensive. Nevertheless, there are research efforts focused on knowledge delivery in e-learning at almost all universities in the region, for it is a modern and widespread scientific discipline. Unfortunately, as we have already seen, only one university and one software development company managed to take a part in an FP7 research project on e-learning (INTELLEO).

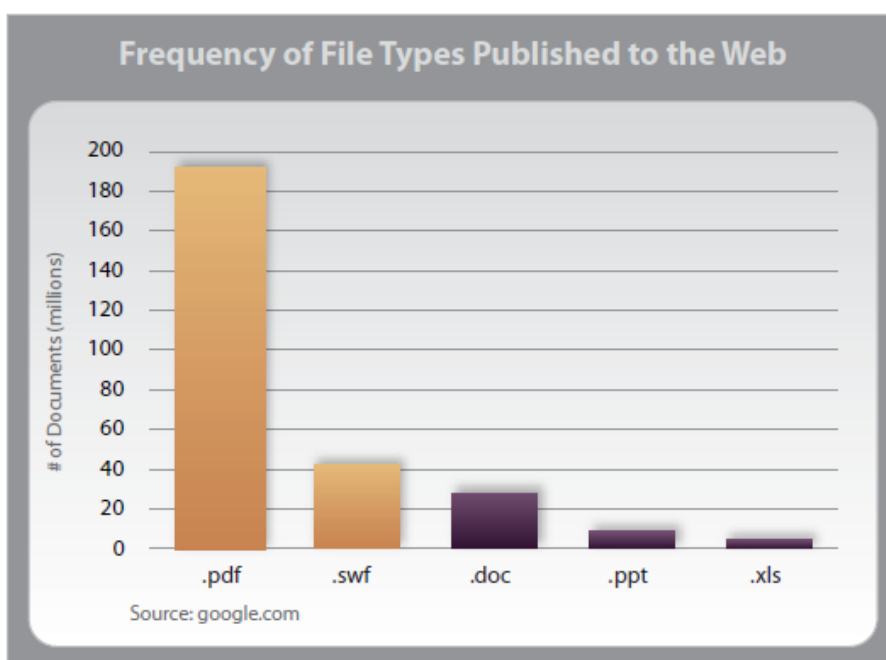
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<sup>1</sup> <http://cordis.europa.eu/>

The popularity of all programs offering e-content and/or e-learning is a proof that there exists market for e-learning in the WBC. Young people and younger working professionals in particular show interest for this kind of education, and represent a huge population that is a target group for e-learning products. On the other hand, consumer power is not high in the region, and even if there is market, the income from e-learning products sales is not sufficient for development of personalized e-learning products. Therefore, research and development of adaptive systems supporting personalized e-learning relies on state and EU funds.

There is another major problem at the institutional level concerning the participation in state or EU funded research programs in e-learning: not all of the institutions are very supportive of participation in the projects. Again, everything relies on individual initiatives and in many situations on volunteering of project participants. We can argue that this is a matter of politics, or management, but this is not very helpful. The only way to surpass this is to educate project participants about their rights, and to support them in implementation of project activities regardless of obstructions from their management.

We can say that in the WBC e-learning is at most implemented through blended learning<sup>2</sup>. This fact is a consequence of both legislation that still does not recognize e-examinations, and high cost of adaptive e-learning system development. The other important issue is the extent to which “pure” e-learning can fit into changes required in the framework of adapting higher education in WBC with respect to the Bologna declaration and the new Laws on higher education.



**Figure 1:** e-Learning materials types, as reported in the eLearning Guild Content Authoring Report (2005) (source: Adobe White paper on *Delivering on the Promise of eLearning*).

Concerning the types of e-learning content, we would like to evoke the results of the Adobe White paper<sup>3</sup>, as shown in Figure 1: the majority of content is in .pdf, followed by some open source or MS documents and a minor quantity of audio-visual presentations and .xls files. These types of e-learning materials are not sufficient for the implementation of personalized e-learning. In order to achieve the goal of personalization, apart from adaptive LMS one should have various types of highly modular contents presented in different media.

<sup>2</sup> Blended learning is a combination of in-situ learning and „pure“ e-learning. It assumes that institution is taking advantages of both approaches: face-to-face knowledge delivery supported by electronic knowledge delivery.

<sup>3</sup> Ellen Wagner, Adobe Systems. (2006). *Delivering on the Promise of eLearning*. © 2006 Adobe Systems Incorporated. All rights reserved. Printed in the USA. 9/06

One of the proposals, from the experience of a WBC higher education institution with experience in e-learning<sup>4</sup> suggests that it would be sufficient to compose materials for e-learning of: textbook in electronic form, .pdf file with text for a module, audio-visual presentation of the material presented in a module, .pdf with explanations of the exercise, .xls or another type of software file of the exercise and audio-visual presentation of the exercise. All of this should be supplied with metadata, so that an adaptive LMS can choose adequate sequence for the user. The LMS should be equipped with mechanisms for user progress tracking in order to guide user through the materials.

## ***Legal framework and government supported projects for e-learning in the WBC***

The legal framework together with large-scale government supported projects in the WBC concerning e-learning is summarized in Table 1.

The first issue catching the eye is that all countries except Montenegro have a Law on higher education according to the EU standards, all except Bosnia and Herzegovina (BiH) have contemporary Law on research (science and research) and that Serbia has an additional Law on the innovative activity.

Concerning the national strategies, all of the listed countries have adopted them, but the level of implementation is different. All of the strategies underline e-education or e-school as one of the priorities.

<b>Country</b>	<b>Law</b>	<b>National Strategy</b>	<b>Ministry</b>	<b>Government supported projects</b>
<b>Albania</b>	Law no. 9741 dated 21.05.2007 "for High Education  Law no. 7893 dated 22.12.1994 "for Science"	Council of Ministers has adopted national strategies for the development of ICT, of telecommunications, and usage of ICT in education.  One of the priorities is e-Education	Ministry of education	A dynamic system for the exchange of information for communication between teachers, students, parents, education institutions and Ministry of Education and Science (University of Tirana)
<b>Bosnia and Herzegovina</b>	Frame Law on Higher Education in BIH (30.7.2007, 59/07) Law on University (39/90, 3/93, 24/93 i 13/94)	Strategy for development of the Information Society of Bosnia and Herzegovina (November, 16, 2004)  One of the priorities is e-Education	Ministry of Civil Affairs	No large-scale government supported projects on e-learning

<sup>4</sup> M. Praso, N. Bijedic. (2007). Challenges of distance learning system development, Conference proceedings ICAT 2007

<b>FYR of Macedonia</b>	<p>Law for High Education, Official Gazette 35/2008 from 14.03.2008,</p> <p>Law for Science and Research, Official Gazette 46/2008 from 7.04.2008:</p>	<p>National Strategy for Development of Electronic Communications with the Information Technologies,</p> <p>One of the priorities is e-Education</p>	Ministry of Information Society	<p>The Government project "Computer for every child"</p> <p>Free internet access in the student dormitories.</p> <p>Internet learning - Two E-learning courses for the citizen servant and the candidates for citizen servants.</p>
<b>Kosovo/Unmik</b>	<p>Law No.2004/42 on scientific research</p> <p>Law no. 2003/14 dated 12.05.2003 "for High Education"</p>	<p>National strategies for the development of ICT, of telecommunications, and usage of ICT in education</p> <p>priorities in the domain of ICT include: E-schools</p>	Ministry of Education, Science and Technology (MASHT)	No large-scale government supported projects on e-learning
<b>Montenegro</b>	<p>Law of science and research (Official Gazette of Montenegro, 71/2005),</p>	<p>Strategy for information society developing (February 2009)</p> <p>One of the priorities is e-Education</p>	<p>Ministry for Information society</p> <p>The Ministry of Education and Science</p>	No large-scale government supported projects on e-learning
<b>Serbia</b>	<p>Law on the Scientific and Research Activity since December 2005.</p> <p>Law on Higher Education Adopted in September 2005.</p> <p>Law on the Innovative Activity Adopted in 2005</p>	<p>Strategy for Development of an Information Society of the Republic of Serbia. Official Gazette of Serbia, no. 87/2006)</p> <p>One of the priorities is e-Education</p>	<p>Ministry of Telecommunications and Information Society,</p> <p>Ministry of Science</p>	<p>Digitalization of scientific and cultural inheritance</p> <p>System for objective evaluation of articulation quality and its application correlated to pathological pronunciation</p> <p>Web intelligence and elearning</p> <p>Corporative Web portal for permanent education of employees</p>

**Table 1: Law legislation and large-scale government supported projects concerning e-learning in the WBC. (Source: ICT-WEB-PROMS Deliverable D2.1: Summary information about relevant policy and projects in WBC)**

On the other hand, it can be said that the level of implementation of strategies is related to the existence of a Ministry of Information Society: in the countries with such a ministry, there are more implemented large-

scale government supported projects concerning e-education and/or e-learning.

The situation with e-education and e-learning in the WBC has to be viewed in the light of the legal framework. From Table 1 it is visible that the legislation concerning e-learning exists only for a few years, ranging from 6-1 years. This period is short, and not very much could be implemented in order to achieve significant results.

Nevertheless, all official reports emphasise the research potential of the WBC, and the need to join the European research area (ERA). This is a consequence of the “old” schooling system and remains of the research infrastructure. The situation with both is the worst in the countries devastated in the recent wars, namely BiH and Kosovo.

## ***Roadmap for WBC e-Learning development in the framework of FP7 goals***

In order to improve the overall situation in the region concerning the e-learning, the policy in the region has to change from documents adoption to implementation. To achieve this, one has to access governments and state institutions and to encourage them to implement action plans, dedicate resources for R&D in e-learning and cooperate with the EU institutions in order to be included into the EU planning and funding. Since this is the concern of government institutions, it cannot be achieved with other than political means, at least not in the near future.

On the other hand, institutions offering e-Learning products have to show more initiative in order to access already allocated state and EU funds, and participate in as many research projects as they can, according their capacities. In order to achieve this, institutions themselves should dedicate more resources to R&D, both human and financial. The institutions should have departments for project management, skilled in project proposing and always up-to-date with the ongoing projects in the region. All of the listed above requires additional funding, and it is not very likely that institutions can assure it.

One of the ways for progress is promotion of EU funded research. Accordingly, the coordination and support action (CSA) projects, such as ICT-WEB-PROMS and WINS-ICT, can serve as instruments for changes. The means of these projects, such as networking, web promotion, forums and focus groups should attract the most interested stakeholders in the region, and their success might result in ever-growing number of interested stakeholders.

Focus groups and forums are very popular and can be the instrument for spreading of positive initiatives in the region. In fact, the forum for e-learning at the ICT-WEB-PROMS web site, [www.ict-web-proms.eu](http://www.ict-web-proms.eu), should attract both local and the EU stakeholders and help them in creating successful project proposals. In line with this, ICT-WEB-PROMS assembled an eminent focus group of the regional experts who should lead the process and so motivate the potential stakeholders.

The third group of stakeholders are individuals who persist in e-learning R&D despite the obstacles. This group is very important, for their enthusiasm is the fuel for e-learning development not only in their institutions, but also in the whole region. These enthusiasts are slowly growing in number, and one can see the results of their efforts on many educational web sites. They are mostly developing e-content, and some of them do it in a modular way, suitable for adaptive LMS. Even if their work is not valued at the institutional level, public recognizes it and their web pages are among the most popular ones.

The authors strongly believe that when the number of stakeholders achieves critical number, even the changes in the policies in the region can be expected.

## ***Summary and conclusions***

All of the WBC recognised e-learning as one of priorities in the field of ICT. This priority exists in all national strategies and the governments incorporated it into the legislative. Nevertheless, the level of implementation of the priority is far from good, even in the countries that achieved most, like Serbia and FYROM.

There are several reasons for slow development of e-learning in the WBC. The most important one is the high cost of e-learning development, and the fact that governments of the WBC cannot allocate adequate funds. The EU recognises this and wishes to offer to WBC stakeholders a chance for development through its programmes. This is in line with all EU reports which emphasise that WBC have research potential in the field of ICT and accordingly, for e-learning.

As seen before, there are three directions of possible actions focusing on governments, institutions and individuals.

For the first two, the EU is funding CSA projects to encourage WBC stakeholders to take part in the EU research. Accordingly, one of the ways for WBC stakeholders to join ERA is networking provided in the CSA projects and the other supporting actions, such as forums and focus groups. That should encourage stakeholders to take on more initiatives, and by succeeding in projects proposals to offer examples of good practice.

At the individual level, there is a lot of enthusiasm, but little means for help. At the EU level, there is PEOPLE program, and that might prove to be the best opportunity for WBC professionals to try to develop something that will improve situation in the region concerning the e-learning and inspire bottom-up changes.

## ***References***

- ✚ <http://cordis.europa.eu/>
- ✚ Ellen Wagner, Adobe Systems. (2006). Delivering on the Promise of eLearning. © 2006 Adobe Systems Incorporated. All rights reserved. Printed in the USA. 9/06
- ✚ IWP\_D2.1\_WBC policy and projects\_v3.0.doc © ICT-WEB-PROMS Consortium
- ✚ M. Praso, N. Bijedic. (2007). Challenges of distance learning system development, Conference proceedings ICAT 2007

## ***Abbreviations***

BiH	Bosnia and Herzegovina
CSA	Coordination and Support Action projects
EC	European Commission
EU	European Union
ERA	European Research Area
FP7	Seventh (EC) Research Framework Programme
FYROM	Former Yugoslav Republic of Macedonia
ICT	Information and Communication Technologies
LLL	Life Long Learning
LMS	Learning Management System
R&D	Research and Development
WBC	Western Balkan Countries
WP	Work Programme