

Open source distance learning solution for government

by
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Abstract

This paper describes a case study for the implementation of an open source solution. The solution is implemented with the purpose of creating a distance learning web portal for the training of judges and prosecutors in Bosnia and Herzegovina. This case study shows how open source solutions can be implemented efficiently and cost effectively. In spite of the considerable requirement from beneficiaries for the software, the project team found a solution that was implemented in five months. This paper also shows how the application of the information technologies can make the process reengineering faster. As a result of such solution the training is deployed differently. The Paper concludes that the implementation of the distance learning solution allowed the training centers to reengineer their work, and judges and prosecutors to speed up the training process.

1 INTRODUCTION

This paper describes the case study for the implementation of an open source solution. This particular solution is implemented in the Centers for the education of judges and prosecutors in Bosnia and Herzegovina. The Paper gives comments on two important issues: How open source solutions can be implemented efficiently in spite of the considerable requirements from beneficiaries, and how can the application of information communication technologies (ICT) sustain the reengineering of institutions - government one in this particular case.

The Center for education of judges and prosecutors in Bosnia and Herzegovina (BiH) is a government's institution (www.cest.gov.ba). It is part of the High Judicial and Prosecution Council (HJPC www.hjpc.ba). The Center has two offices, in Sarajevo and in Banja Luka. Both Centers were established, in spring of 2004. The main objective of the Center is to train judges and prosecutors and to enhance capacities of BH judicial sector.

The United Nations Development Program (UNDP) in Bosnia and Herzegovina (www.undp.ba) in the spring of 2004 launched a project with the aim to support both centers for the reengineering of their work and the promotion of ICT. The goal of the project was to implement the first government distance learning education portal in BiH. This project was in line with National Strategy for development of information society¹.

2 ABOUT E-GOVERNMENT

The EU defines "e-government" as "the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government." The impact of e-government at the broadest level is simply better government by enabling better policy outcomes, higher quality services, greater engagement of citizens, and by improving other key outputs identified.

E-government **improves efficiency**, as ICT is an enabler for efficiency improvements in mass processing tasks and public administration operations. Internet-based applications can generate savings on data collection and transmission, provision of information and communication with customers. Significant future efficiencies are likely through greater sharing of data within and between governments.

¹ Policy, Strategy and Action plan for development of information society. Adopted on 69th meeting of Council of Minister, November 2004. Bosnia and Herzegovina.

E-government **improves services**. Successful services (both online and off line) are built on an understanding of user requirements. A customer focus means implies that a user should not have to understand complex government structures and relationships in order to interact with government. The Internet can help achieve this goal, by enabling governments to appear as a unified organization and provide seamless online service. As with all services, e-government services must be developed in light of demand and user value, as part of an overall service channel strategy.

E-government can be a major contributor to **reengineering** that all governments are facing. The issue of public management modernization and reform is on the top of the agenda in BiH's road to EU. Developments, globalization, new fiscal demands, changing societies and increasing customer expectations – mean that the reform process must be continuous. ICT have underpinned reforms in many areas. For example by improving transparency, facilitating information sharing and highlighting internal inconsistencies in government systems. E-government can help build trust between governments and citizens. Building trust between governments and citizens is fundamental to good governance.

3 ELECTRONIC READINESS AND SITUATION ANALYSIS

In order to understand the current situation in which this project was implemented, we shall review current electronic readiness of the society in Bosnia and Herzegovina, situation in Center and beneficiaries of the Center.

Development of information society in Bosnia and Herzegovina was interrupted by fall of Yugoslavia and aggression on the country that followed during the 1992-1995 war. This interruption was even more dramatic since it happened in years when development of ICT was booming in the world. Therefore, BiH missed almost a decade to catch up with the rest of the Europe. Because of this situation, currently internet penetration in BiH is only about 20%². According to the Early Warning Report for 2005 published by UNDP, some 46,2% of people have mobile phone and 19,5% of households have PC.

Electronic readiness of Center's beneficiaries (judges and prosecutors) is also very bad. Specifically, according to HJPC data from 2005³, out of 83 courts in BiH that includes some 3200 professional employees, only 1700 had access to computer. Only six courts have web site. However, all courts had access to email. Besides, this more and less technical issues, Center had a serious attitude problem with beneficiaries. Center for judges and prosecutors worked with perhaps the most traditional group of beneficiaries – judges. From the experience of trainers and Center's staff, they were very hard to work with and persuade to adopt new technologies.

However, electronic readiness of Center was adequate. Center for training of judges and prosecutors with offices in Sarajevo and Banja Luka have charismatic directors, both former judges with skills and great will to make a difference. Center was understaffed, with only six people working in Banja Luka office and ten in Sarajevo office. Center was equipped relatively good and every employee had access to computer. However, their methodology of work was very primitive. In combination with small team, it created real problem for Center to serve such a huge client base.

Judicial system of BiH was shaped with new laws and regulations that very few people had understanding for. New political makeup of the country with two entities, ten cantons and one district, allowed creation of laws consequently lead to very confusing legislative environment. Center's goal to educate judges about new laws therefore was even harder. However, the biggest problem in performing their work, Centers saw in that fact that judges and prosecutors had only four days of obligatory training per year. This imposed almost

² According to the Report by Regulatory Agency for Telecommunication www.rak.ba.

³ www.hjpc.ba

impossible task to Center – to train all judges efficiently. This was a call to introduction of new methodology.

Center applied very poor methodology. They organized trainings on specific topics related to new laws. Training was organized in traditional manner, where former judge or expert prosecutor would lecture in front of the group of judges and prosecutors. Sometimes, power point presentations were used, but most often not. Additional document presented during the trainings were quotes from new legislation and notes written by lecturer. Other obstacles to good training, was situation that often judges from distant cities would lose two days in travel to attend the lecture. On the other hand, Center would spend weeks to organize and promote a single training. Traditional tools for communication like phone and fax were used that imposed great effort to communicate training calendar to all courts. Further problem was that training organized was just for people that were present on the event. Everybody else would have to wait to attend similar training in the future. Moreover, old and experienced judges were retiring and there was no chance to preserve their knowledge. One of the features that they needed is a way of preserving trainings.

4 REENGINEERING REQUIREMENTS

The Center had a vision to offer a new service to judges and prosecutors. This new service would be a combination of web technologies and other ICT that would allow them to: (1) communicate faster; (2) gather beneficiaries in forums and allow them to exchange knowledge even outside of the Center; (3) enhance trainings and train more people; (4) preserve trainings that happened in the past; and (5) make the Center's work more cost efficient.

At first, the project planned the development of customized software that would allow the Center to implement all of these requirements. However, the analysis showed that such software would be very expensive and that the development would last too long. As an alternative, the project plan suggested the implementation of the open source using the MAMBO server and the MOODLE server for distance learning.

5 OPEN SOURCE IMPLEMENTATION

Open source implementation was delivered in two parts. The first part was implemented using MAMBO SERVER (www.mamboserver.com). This open source technology allowed us to implement software that had already been developed and tested. Secondly, the open source solution that was implemented used the MOODLE server for distance learning.

When implementing information systems with open sources, a common problem is often that such software cannot support all the features of the system. However, with this solution, the Center got all the features that they had requested. The software allows the Center to speed up the implementation process and to deploy all the content to the web very fast.

Here, we shall compare the features requested by the Center and the new system design with the available feature of the open source software. The following table presented features required by the beneficiary and solutions provided by open source or by other means.

Features that Center required	Solutions provided by opens source
1. Easy to implement	MAMBO and MOODLE are ready to install with minimum hosting requirements. Software is almost bug free and it is free of charge.
2. News section	MAMBO has news section. This software feature allows them to post news on the web.
3. Calendar section	MAMBO and MOODLE both have calendar feature that would allow posting of events groups by categories.
4. Survey of users	MAMBO had feature of survey that allowed for

	anonymous.
5. Documents	Center would like to post document online. MAMBO has document feature that allows for upload of documents and easy search.
Forum	Center requested online forum that would allow judges and prosecutors to exchange information without real involvement of Center. Forum has such ability, with features of moderated and unsupervised forums.
Distance learning web portal	MOODLE was purely designed as a distance learning web portal with ability to put all online content, get reports, track students, etc.
Protected access to online trainings	MOODLE has feature to allow access to distance learning via login and password.
Language	Bosnia and Herzegovina has three official languages: Bosnian and Croatia (using Latin letters) and Serbian (using both Latin and Cyrillic letters). Centers had additional request to have English language site since a lot of international organizations were working in BiH judicial sector.
Reports	Center had to report to users and back to Steering Board of number of trainings organized. Also, judges often requested reports on trainings they attended, etc.
Repository of knowledge	MOODLE distance learning component allowed for posting of all relevant training material. Digital presentations, documents, links to laws allowed Center to put all materials on the web.

The following screen shots gives an overview of MAMBO and MOODLE sections of the web portal and their main features.

CEST news filtrated information from judicial sector, legislation and education. Get information fast.

Survey: Anonymous survey gives Center opportunity to get feedback from users. Tell us your opinion.

Calendar: Calendar allows you fast review of all relevant events related to your work, seminars, trainings, conferences, etc. Plan easier with calendar.

Documents: Web portal allows you to find all relevant document. All document on one place.

Library: Library offers you list of books that are available at Center with comments from your colleagues that read a book. Find a book you need.

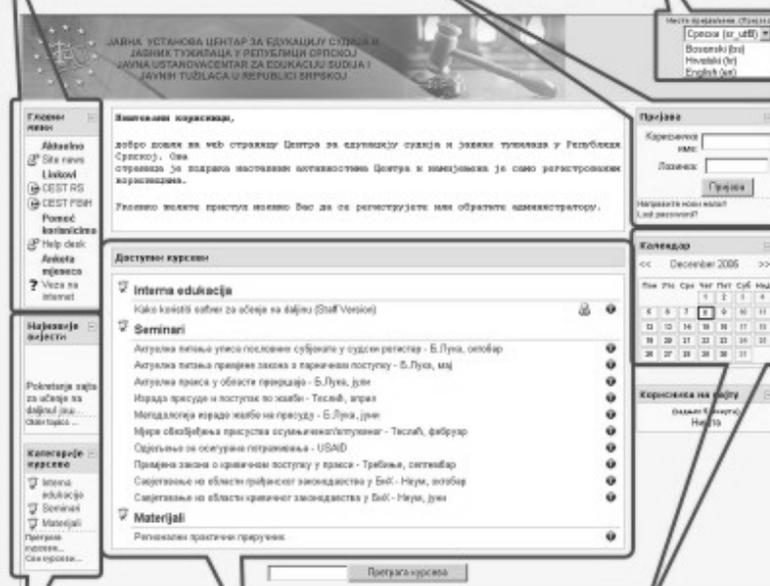
Forum: Internet forum allow communication with colleagues, opportunity to ask questions, find answers, etc. Communicate efficiently and save time.



Main menu: Reports on trainings that you have participated, help as well as other information.

Register: Enter your user ID and password and become a member of the web portal. Only registered users have ability to access this portal.

Select a language: Choose your language: Bosnian, Serbian, Croatian or English. Web portal for all.



Latest news: List of news you have missed since last time you logged.

Available seminars: Every day, repository of knowledge is growing, structured according to subject area. This section allows you to get training you want.

Calendar: List of trainings available at Center. Plan your calendar ahead.

6 REENGINEERED METHODOLOGY OF CENTER

With the new system in place the Center delivered a new methodology of work. They used the web site to post all information about events online in the calendar section of the site. This allowed judges to see the list of events beforehand and plan their schedule for a few months ahead. Furthermore, the Centers would communicate with judges via email or using web forums. The communication via the email allowed the Center to send information using email instead fax or phone. This reduced workload dramatically. Furthermore, judges would be able to apply for training participation online, reducing time on their side to process request.

The Centers did not have to substantially change their methodology for trainings' provision. The training was still deployed via traditional lecturing with or without power point presentation, with more and less successful question & answer sessions. However, the Centers would now film the entire training and make DVDs. DVD films would be available at the Center and posted on the web. Judges could, therefore, now undergo the trainings from home or office. First of all, the use of the online distance learning tool allowed checking online the document and requesting DVD film. After seeing training on DVD, they would join the forum that would allow them to clarify questions with colleagues and with the trainer. Forums would allow users to express their opinions without wasting the other participants' time (as in traditional training). An initial important obstacle was that judges were very bad with IT equipment. However, in less than four months after the launch of the web, we have seen over 60 training events online (from both offices in Sarajevo and Banja Luka) and over 3500 visits and requests for training materials online. This generated better result (in terms of percentage) than traditional training. This sample size and time span was too short to make serious conclusions, but this will be a nice data to track in the future and see if online training will become more popular than real one.

What did really happen to the Centers' methodology as a result of new system's implementation?

1 Fast delivery of system

Open source solutions were delivered in less than five months. Open source was already programmed and free of use. The only system requirement was hosting and computer equipment (one good PC).

2 Steep learning curve of administration staff

The web portal makes it possible for the administrator to be a person with limited knowledge about internet or computers. In this particular case, the administrator would be somebody with a background in law. Since MAMBO and MOODLE have online systems for uploading files and complete administrative tasks, the system does not require any particular IT or programming knowledge.

3 Reduced cost of work

Before, the Center would send over 100 faxes and made twice more phone calls in order to pass the information to courts about related trainings. Now all of this is done automatically by one administrator in a matter of minutes. Since courts had access to email, this was a fastest and cheapest way to do it.

4 Repository of knowledge

As a part of project implementation, the Center acquired a video equipment to film trainings. Now all trainings are available on DVD. During the training, the training administrator would film the training and create a library for the training material at the Center for later viewing upon request.

7 CONCLUSION

We can conclude that in spite of the wide opinion that opens sources cannot deliver features required for complex information systems, with this example we showed that indeed open source can be implemented very competently. On the other hand, the information system implementation can motivate the organization providing the service and the beneficiaries to reengineer the way they work, interact and move forward.

We saw that the Center was able to implement the solution in less than six months. Moreover, the new system did not create demand for new workplace, but rather reduced workload of institution.