

Establishing Digital Repositories at Western Balkan Universities: Implementation of PHAIDRA System, Educational Activity and Regional Cooperation

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Abstract

The paper presents part of the Tempus project “New Library Services at Western Balkan Universities” (coordinated by the University library “Svetozar Marković” in Belgrade from 2010 up to now), whose one of two main objectives is to establish digital repositories on the 6 universities of the Western Balkan (three countries: Serbia, Montenegro and Bosnia and Herzegovina). The repositories are based on the same system – PHAIDRA, created, developed and launched in 2006. by University library in Vienna, which is one of the partner in the Project. PHAIDRA is system designed for long term archiving and managing of different types of digital objects; legislation about copyright protection is included in the system and can be easily applied. The repository of the University of Belgrade, with all necessary adjustments (language, university structure, classification system, etc.), became the leading model for all other repositories. Dissemination of information about repositories is started at the University library for several groups of faculty librarians, who participated one day training about the functioning of the system. Training of librarians is also the first step in connecting with teaching staff of those faculties. The Rectorate of the University of Belgrade gave institutional support to this Project: by signing the Berlin Declaration on Open Access to Knowledge in the Science and Humanities, rector emphasized that PHAIDRA repository is established accordingly to this decision and invited professors, researchers and others to publish their scientific work within this repository and to make it visible worldwide.

Key words

PHAIDRA, permanent archiving, university repository, open access, regional cooperation

Introduction

Tempus project “New Library Services at Western Balkan Universities” is launched in 2010. and coordinated by University Library “Svetozar Marković” in Belgrade. The main objective of the Project is to establish new systems at six Western Balkan universities for the purpose of more efficient library services, integration and institutional diffusion of academic library network in Serbia, Montenegro and Bosnia and Herzegovina. Partners in this project are: University of Belgrade, University of Niš,

University of Kragujevac, University of Montenegro, University of Sarajevo and University of Tuzla (regional), and University of Vienna (Austria), University of Maribor (Slovenia) and Middlesex University (Great Britain), as EU partners (New Library Services, 2009).

Project is divided in two main parts: first is focused on implementation of new library services on COBISS system platform for improving library economy and automatization of some parts of library process that were not included in previous version of COBISS. The second part is dedicated to the establishing of digital repositories on six universities. The final step of the project should be harmonization of existing and new library functionalities in unique system. Regional established system is conceptualized to provide free and efficient exchange of data and documents in the region, as a basis for regional university cooperation.

Background

Western Balkan Universities have different number of faculties and university population. The biggest and oldest is University of Belgrade with 31 faculties, 90.000 students and 7000 members of university staff. Two other universities – University of Niš (13 faculties) and University of Kragujevac (11 faculties) are university centers which gather faculties of their regions. University of Montenegro makes integrated university center for ten cities in Montenegro. Universities in Bosnia and Herzegovina, in Sarajevo and Tuzla, are university centers with all together 1800 members of teaching staff and around 55.000 students (New Library Services, 2009).

The structure and organization of those universities vary and some of them (like University of Tuzla) do not have central university library. At the same time, there is a strong need for cooperation and modernization of library organization. The process of creating the digital repositories is very uneven, and it depended on material and human resources of certain faculties. For example, at the University of Belgrade, some faculties created their particular repositories for their own purposes. The visibility of those repositories could not be very big and it served only for teachers of those faculties.

The creation of university repositories as integrated and centralized system for archiving of digital objects, born digital or digitized, became the urgent need, since it offers possibility for the university to be more coherent and more visible. Repositories give possibility to create organized collections of digital material, as well to satisfy the needs of the users – teachers and other members of university staff, who become, through the process of self archiving and self publishing, the content providers.

PHAIDRA Vienna

The solution for Western Balkan university repositories was given by one of the project partners – University of Vienna. Together with University library in Vienna and Computer Center, Vienna University developed and launched in 2006. project PHAIDRA for preserving all sorts of digital assets which derive from research, teaching, e-learning, managing etc. (Budroni, 2011)

PHAIDRA (Permanent Hosting, Archiving and Indexing of Digital Resources and Assets) is designed for long term preserving and managing of different types of digital objects like texts, images, video and audio files, and it also enables grouping of the object in collections or containers. Any digital content can be archived in PHAIDRA, but only if

the object is created in recommended format it can be uploaded as particular type of object. This is modified version of Fedora system using CMA – Content Model Architecture, the architecture which can distinct different contents of the repository and present it to the users.

The University of Vienna uses PHAIDRA system and the project is still developing and upgrading. The university staff – teachers and students, are integrated in the system which allows them to upload objects using their own username. By offering PHAIDRA system as an open source solution to other universities, PHADRA.ORG project was founded. This project, as a model of sharing and harmonizing PHAIDRA system developments, now includes University of Vienna, University of Padova, University of Music and Art, Graz, Linz University of Art, Forum of University Libraries in Austria, University of Belgrade, University of Niš, University of Kragujevac and University of Montenegro. University of Sarajevo and University of Tuzla are in the process of establishing PHAIDRA system (PHAIDRA, 2012).

PHAIDRA advantages

There are several reasons that recommended PHAIDRA for new repositories of Western Balkan.

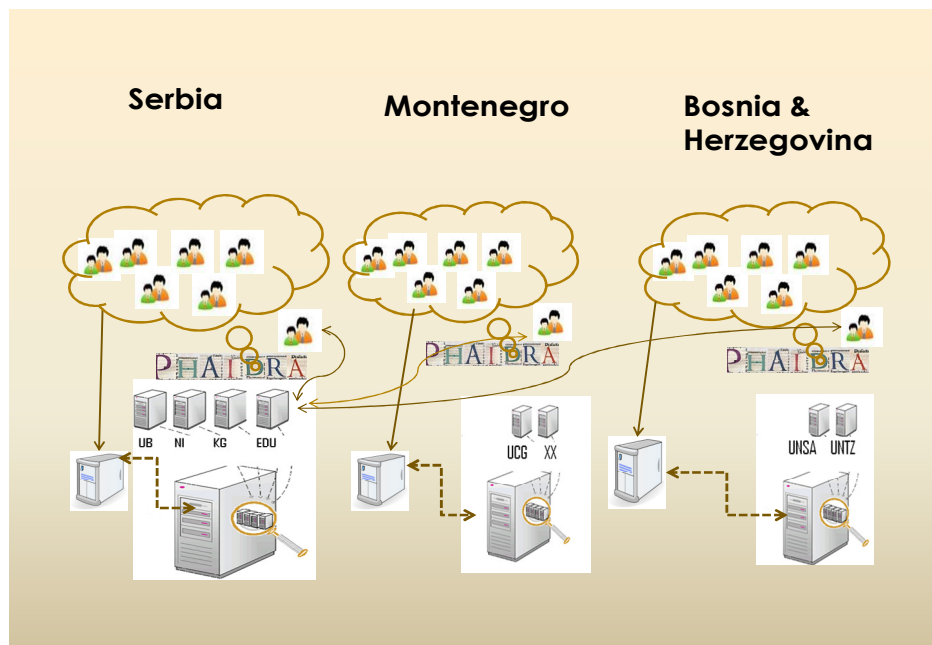
- *Preservation based on PREMIS standard (Preservation Metadata: Implementation Strategies) of various sorts of digital objects* which enables to combine different kinds of materials that can be used in teaching process.
- *LOM standard* – metadata set in PHAIDRA is modified Learning Object Metadata scheme, which is IEEE standard for describing teaching objects or objects intended for usage in educational process.
- *Citation based on stable identifiers* – objects archived in PHAIDRA receive permanent identifier or permanent link which enables citing of the objects and their identification worldwide.
- *Grouping of the objects* – objects can be gathered in collection with the unique permanent link; this enables to connect different objects and to send information about them through one single identifier.
- *Legal protection of the document* – Creative Common licenses, together with option of direct apply of copyright law and GNU licenses, is integrated in the system; by uploading the object, user must choose one of the options he prefer; system also provides basic information about the licenses and each option in particular.
- *Classification system* – system offers possibility to use more than one classification scheme and to combine them.
- *Access policy* can easily be managed; uploaded object is primarily visible worldwide, but user can restrict the access to certain groups or institutions; restriction can be applied only for certain period of time and then object can be again in open access, following wishes of the user.

PHAIDRA at Western Balkan universities

Structure of PHAIDRA on Western Balkan universities is based on technical support of three servers, one for each country. Servers in the countries with more universities, like Serbia or Bosnia and Herzegovina contain few virtual servers for particular repository. Server for Serbia is located at the University library “Svetozar Marković” and it contains virtual servers for University of Belgrade, Niš and Kragujevac. Server for Bosnia should contain virtual servers for University of Sarajevo and Tuzla (Mazić, 2011).

Such structure with virtual servers in one place enables more economic and efficient managing and technical support. It has several more advantages:

- universities of particular country can use same classification system
- user management system can be centralized and easily maintained
- educational, marketing and developmental services can be shared and unique
- the costs of technical service and maintenance of the equipment are decreased.



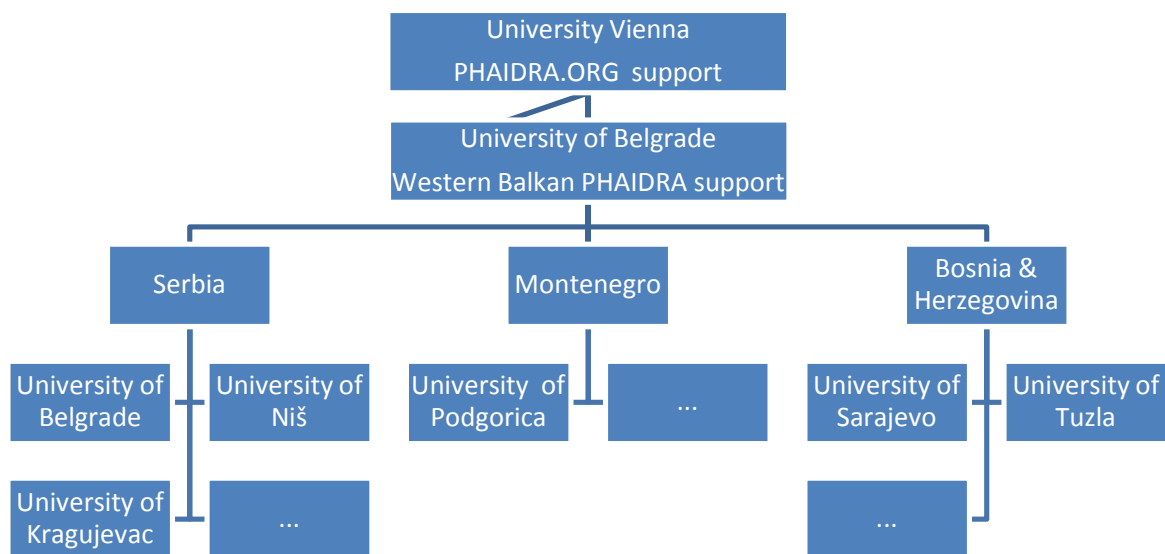
Picture 1. PHAIDRA architecture on Western Balkan

PHAIDRA repositories are designed also for archiving the Ph. D. thesis from Western Balkan universities, which should be preserved and available in free access. The establishing of repositories initialized the formulation of unique layout for thesis, and some universities from the region already determined the procedure how to complete thesis and how to archive it in repository. In the first phase, archiving will be technically realized by central university library and the user will give signed authorization with indication of chosen license (Creative Commons) for document protection.

PHAIDRA Belgrade

PHAIDRA system was first implemented at the University of Belgrade: the system is installed at the central library – University library “Svetozar Markovic”, where is placed server for Serbian PHAIDRA repositories (PHAIDRA Belgrade, 2012). Since the University library is the coordinator of the project, University in Belgrade took the leading role in establishing the repositories of Western Balkan. The realized activities became the model for other repositories.

Main PHAIDRA team is located at the University of Belgrade, with the function of intermediary between all partners in the Project.



Picture 2. Structure of technical and nontechnical support

As a creator of PHAIDRA system, University of Vienna is providing technical and nontechnical model of support and it transfer it to the University of Belgrade, which it disseminates to other partners. Reversibly, University of Belgrade notifies every technical difficulty and problem that occurs in each repository, judge and redefines them, and in such revised version sends them again to University of Vienna for final evaluation. This procedure enables efficient solution of problems and avoids duplicating of remarks.

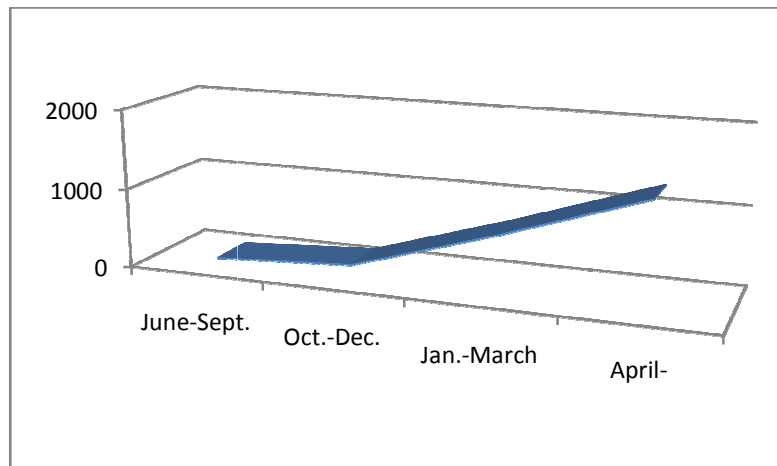
The structure of technical and nontechnical support is open and allows to every interested institution to join and to become a member of PHAIDRA Consortium. Partners are obliged to share their solutions and experiences and to offer to others advancements they accomplish.

In general, the process of implementing the system developed in three phases:

- 1) Technical installation and testing. After installation of system on Belgrade server, the testing of its performances started with new technical support. It meant also the systematic notification of all technical problems and creating the cooperative network for technical solution.

- 2) Adjustments for the University. Beside the simple translations of the texts that were incorporated in Austrian PHAIDRA, it was necessary to adjust the system for the needs of the University of Belgrade. PHAIDRA Belgrade had to follow the scheme of Vienna system, but also to consider the particularities of the Belgrade University. Organization scheme of the University, study groups or classification scheme are some of the major adjustments that were made.
- 3) Dissemination of the information. The promotion of the repository started while the testing and adjustments were still in process. Mainly, it included the publishing of material like flyers and manuals, and developing the website of repository with useful service information. It also meant that repository has to be presented on conferences and mentioned in presentations organized at the University.

The strategies for other repositories in the Serbia, developed at their university libraries, followed the same model. This meant centralization of the activities at the university library and their diffusion to faculty libraries. University in Belgrade first started the uploading of objects and this process marks constant growth.



Graph 1. Number of uploaded object in Belgrade Repository

These activities included mainly library collections, but some of the objects are uploaded by users, mostly librarians of faculty libraries.

Educational activities

PHAIDRA is based on the principle of self archiving by the university staff, teachers and others employees of the university, and educational process had to be part of all activities connected with repository establishing. The strategy that was accepted included in the first instance faculty librarians, or other professionals from the academic library system. At the University of Belgrade each faculty has at least one branch library, as well as institutes which are the part of the University.

The inclusion of faculty librarians has at least three advantages:

- 1) Enables spread of the information about the possibilities of the repositories among the university environment
- 2) Makes the branch libraries important disseminators of the information

- 3) Gives possibility for coordinator of the project to get closer to academic staff and to be informed about their needs and expectations.

This process also enables the better connection between the librarians of the academic libraries and consequently better cooperation, providing the centralization of system but also developed information network.

During November and December 2011, and in February 2012. several workshops for faculty librarians were organized. Workshops contained presentation of the system and its possibilities and in particular the introduction with issue of copyright protection within the repository. At the same time, the second phase of the education is announced which will include university professors and researchers. Existed database of researchers ECRIS (Electronic Current Research Information System) is incorporated in the system with the data about potential users (around 3500), whose accounts should be activated on their demand. Other users who weren't in this database, could register by themselves in order to receive their username.

Open access policy and institutional support

Promotion of open access is strongly connected with PHAIDRA Project. For example, PHAIDRA Vienna is participating the Openaire Project (Open Access Infrastructure for Research in Europe). Every object uploaded in repository is primary visible worldwide, but there is a possibility to restrict access following the wishes of the user. For the development of repository the key role is support of the whole University.

The concrete support came from the Rectorate of the University of Belgrade. In November 2011. Rector signed the Berlin Declaration on Open Access to Knowledge in the Science and Humanities. In his communication rector emphasized that PHAIDRA repository at the University library "Svetozar Marković" is established accordingly to this Declaration. He encouraged professors, researchers and others to publish their scientific work in this repository and to publish in the journals which allow its authors to archive the version of their papers in the institutional repository (University of Belgrade, 2011). Similar decision has been reached at the University of Niš as a starting point for promotion of the repository and dissemination of information.

Conclusion

Establishing repositories at six universities in the region, different in the potentials and organization, can take many risks and bring problems in realization. Such approach offers opportunity to establish not only repositories, but to improve interlibrary cooperation and coordination, mainly because the experiences from one institution can be valuable for others. Having the same system as a basis for repository, library in the region can collaborate more closely.

Process of establishing repositories could be taken as a model of solidarity based development: each partner participates and contributes to the system, which everybody can use. It is imagined like a system of constant share and exchange of information and experiences.

Simultaneous realization of such project enables the possibility to improve and to develop in short time library information system, and to provide that academic institution, no matter of its previous experiences, have digital library for permanent archiving of digital materials. It also facilitate to universities in the region to upgrade their potentials

and to modernize their teaching process since the repositories give basis for e-learning. Finally, repositories could bring to all universities in the region better visibility worldwide and make them more attractive for students and researchers.

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