Study Cases on Specific LMSs Used in Romania and Worldwide

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Abstract: - It is hard nowadays to speak about eLearning without implicitly including an eLearning portal used to deliver educational material and manage interaction between students and tutors. Learning Management Systems (LMS) are a set of tools and services used for delivering knowledge. They are actually Content Management Systems, designed for pedagogical use and can be open source or commercial. This paper presents a few of the management systems considered by the authors to be the most important ones and their use amongst universities world wide and also in the particular case of Romania. We have established upon the results of these case studies that open source systems are the favourite ones, Moodle leading by far the LMS competition.

Key-Words: - LMS, CMS, LCMS, VLE, Moodle, Blackboard

1 Introduction

In order to describe some of the eLearning systems implemented by universities world wide, a few of the systems that support online delivery of the educational content should be presented first. These Content Management Systems (CMS), Learning Management Systems (LMS) or Learning Content Management Systems (LCMS) are available open source or commercial. Each institution chooses the most suitable variant, according to its requirements/financial possibilities ratio.

In Kaplan-Leiserson revised glossary CMS has the following definition: a software application or a set of applications that facilitate the process of designing, testing and publishing of educational content, usually on Web pages. [1]

LMS is a term used to describe a wide range of systems which organize and provide access to online learning services to tutors, students and administrators. These services usually include access control, delivery of learning content, communication tools and organizations of user groups. Another term that is often used as a synonym to LMS is learning system [2]. A LMS is usually designed to handle courses by multiple publishers and providers. It usually does not contain its own authoring tools. It focuses instead on managing courses created by their sources. [1]

LCMS is a software application which allows tutors to manage both administrative and content related aspects of the training process. A LCMS combines the management capabilities of a LMS with the content creation and storing features of a CMS.

VLE (Virtual Learning Environment) is to some extent synonym to LMS, with the difference that VLE concentrates less on the characteristics related to the management of learning. A Learning Environment is a software designed as a complete solution for online learning.

This paper presents a study of the LMSs used by a few of the renowned universities of the world and also by some of the Romanian universities. Based on these studies we have drawn a couple of diagrams illustrating the most used LMSs.

2 LMS examples

The educational market consists nowadays of a variety of educational systems, commercial, open source or developed by the universities themselves. The following ones are merely a few examples of the choices a university has when it comes to choosing a learning management system.

Moodle is one of the most used VLEs. It is a free technology, which allows universities to create online courses in a simple manner. The software can be downloaded and used on any computer, having the ability to adapt to different needs, from sites with only one tutor, to universities with thousands of students. [3]

Atutor is an open source, web based LCMS, which was designed having in mind accessibility and adaptability aspects. Administrators can install and update Atutor in a few minutes. Tutors can quickly
During its first 4-5 years of existence, it was foreseen with a backbone and modules for managing, delivering and evaluating the students’ learning process. Sakai was meant to create an environment where students and tutors could meet in order to discuss and share knowledge. [8]

uPortal is a free portal, developed by and for universities. uPortal is built using open source technologies like Java, XML, JSP and J2EE and enables, among other features, web-based content and campus applications. [9]

Elluminate offers solutions for real-time online learning and collaboration, increasing thus the retention and completion rates. Elluminate has been used by more than 3 million tutors and students from 185 countries [10].

Wimba offers collaborative learning software solutions for the educational industry. These solutions allow tutors and students to easily teach and learn online, to start live discussions, to instantly exchange messages. Tutors can use Wimba to transform online Word documents into online courses and to create and manage tests and exams. The following institutions are amongst the ones that have chosen Wimba: State University Arizona, State Colleges in California, EDUCAUSE, Princeton University, Georgia University and British Columbia University [11].

ANGEL Learning is comprised of a set of learning management tools used to create VLEs for online learning and hybrid classrooms from K-12 schools, higher education and enterprise trainings. Compatible with all standards, Angel is supposed to be a portal which offers instructors more tools and flexibility in order to personalize the learning environments to make them compatible with personal preferences, teaching methods and styles. The following facilities are amongst the ones offered by Angel Learning: content management, syllabus creation, lessons development, podcasting, wiki, blog, online journals, chat and instant messaging. [12]. In May 2007 ANGEL Learning launched the ANGEL Learning Island, as an effort with the Second Life Community Educators (SLED). The island is meant to offer a virtual world for educational experiments inside the popular application [13].

Dokeos, eFront, Fle3, ILIAS, OLAT, KEWL, LON-CAPA, eCollege, Desire2Learn are examples of other LMSs, not as renowned as the first ones.

Lately the interest towards the adoption and implementation of virtual 3D environments and games into the learning process has considerably increased. Second Life is the most popular online 3D environment, which has found international recognition at the end of year 2006, when it reached 1 million users [14]. Developed by Linden Labs, Second Life is a virtual world with multiple players, built by every user and simultaneously accessed by people from all over the world. According to the affirmations of Educause organization, Second Life is a suitable tool for eLearning due to the fact that passivity is excluded in the case of games and simulations; students that are engaged into educational games and simulation programs develop actions of interpretation, analyses, discovery, evaluation and problem solving. Universities like Harvard, Princeton and Stanford use the Second Life Grid platform, destined for education [15].

Apple’s service, iTunes U, offers access to language lessons, courses, audiobooks and materials that can be downloaded and ulteriorly listened or watched from mobile devices [16]. Yale, Berkeley, Carnegie Mellon, Stanford, Duke, MIT, UCLA, OU are merely a few of the universities that use this software.
3 Case study of the LMSs in use
This chapter is a case study concerning the use of LMS, LCMS by eLearning supplying universities world wide. The following table presents the results of case study involving a few well known eLearning providing universities and management systems, the latter ones both open source and commercial:

<table>
<thead>
<tr>
<th>UNIVERSITY LMS USE</th>
<th>Moodle</th>
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<th>Sakai</th>
<th>Blackboard</th>
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The results shown in the Table 1 illustrate the current situation of eLearning portals around the world, but at a smaller scale. As it can be seen, there is a definite predisposition towards open source systems (Moodle, uPortal, Sakai), in comparison to commercial alternatives of delivering online educational content.
Considering the fact that the number of free LCMS solutions is continuously growing, the availability of universities to develop their own system is considerably diminished. Universities prefer adapting and using existing online systems. In order to offer a correct analysis of the above study, it should be taken into consideration the fact that the Open University is not a single institution, but a concept implemented and adopted by universities all over the world.

Fig. 1 consists of a graph that visually illustrates the relation between open source and commercial systems used by the universities mentioned above:

![Grafic LMS-uri](image)

Fig. 1: Open source versus commercial in the world wide universities

The blue colours are used to represent the commercial eLearning systems used by the universities, while the red shades are used to represent the open source systems. The difference between the two colours is considerable, open source systems leading the competition. Moodle occupies a fairly distanced number one place, with 36%, while Blackboard, a commercial LMS occupies the second place, with 23%. The third place is occupied by Sakai, an open-source portal meant for university use. This study included over 30 of the most known universities world wide, including Open University and their LMSs.

4 eLearning initiatives and LMSs in Romania

Reforms in the higher technical education started in Romania in the year 1990 with changes in the curricula, specializations’ profiles, the number of students enrolled and the enrolment methods. The improvements continued in 1995 with a growth of the interest towards the new educational methods, mostly due to European projects. The European Union offered support through Phare Tempus and Socrates programs [17].

A number of initiatives launched by companies and state institutions were an important support to eLearning. One of the first programs was SEI (Computer Based Educational System) initiated in 2001 by the Educational and Research Board; it was meant to support the teaching process in secondary education by using modern technologies [18].

Siveco is one of the most important developers of online solutions in Romania. AeL (Advanced Learning), the system they have developed, won the first prize at the World Summit for Information Society. It is a complex portal which offers tools for learning and teaching, evaluating, content and learning management [19]. It was implemented into corporations, secondary and higher education [20].

Softwin is a company involved in the delivery of eLearning solutions since 1993. Its eLearning department, INTUITEXIST, is the first Romanian organization to develop software products compatible with the SCORM 2004 standard.

TEHNE – The Centre for Development and Innovation in Education – is an organization active in the field of education, developing eLearning projects. Between the years 2003-2006 they developed the following ones: Elearning.Romania and VEMUS (Virtual European Music School).

The first educational Romanian portal, www.1educat.ro, developed in 2001 by the Academy for Excellency in Career, was a great success, leading to the launch of Academia On-line eLearning system, in 2003 [21].

Timsoft is another example of a Romanian company, listed in the European eLearning Directory 2003, that offers eLearning solutions. Etrainer is a free eLearning application that offers the following functionalities to institutions and private companies: management of the courses, users, tests and reports. All these tools are available with a simple registration.

The higher educational system in Romania is currently in a reforming process to make it compatible with the Bologna declaration. Beginning with 2005, higher education is organized on four levels: bachelor degree, master and PhD [22].

The level of new informational technologies’ implementations is quite high, mostly inside the distance learning centres, establish in almost every university. This is possible thanks to considerable finances coming from the Romanian Government, European and international projects [23].

Universities in Romania, following the international examples, opted for LMSs when it came to organizing their learning content. They chose open source, commercial or self developed systems. The following are a few examples of Romanian universities and the LMSs they use:

Credis is a distance learning centre in the “Bucharest” University, which uses Unibuc virtual
Campus as an educational portal. It includes The Credis Academy, the biggest CISCO Academy in the country and also Microsoft IT Academy CREDIS, the first Microsoft Academy in Romania. The “Politehnica” University of Bucharest uses Moodle as LMS to deliver online courses for a few of its faculties - Automation and Computers Faculty (https://www.cpru.pub.ro/moodle/), Faculty of Engineering with teaching in foreign languages (http://fils.curs.ncit.pub.ro/), Faculty of Engineering and Technological Systems Management (http://www.ctamn.pub.ro/dev/moodle/) and Faculty of Mechanics (http://www.ctamn.pub.ro/dev/moodle/).

“Carol I” National Defence University Bucharest has a Department for Advanced Distributed Learning (http://adl.unap.ro/modules/news/) which uses PfP LMS portal for delivering online courses to its students.

Faculty of Communications and Public Relations “David Ogilvy” from Bucharest launched, as a premier in Romania, the first online Master programs [24]. Students can collaborate online using a set of communication and collaboration tools known as Google Apps.

“Vasile Goldis” University from Arad uses Moodle to build an online learning environment and to deliver online courses to students (http://bb.uvvg.ro/online/index.php).

The Open and Continuing Learning Department from West University Timisoara, founded in 1999, offers both academic and post-graduate courses. Lotus LearningSpace, a product of IBM Lotus software, is the system they use.

In 1998, The “Politehnica” University of Timisoara founded The Distance Learning Centre CSID, which supplied learning material both through Internet and traditional ways. The portal (http://www.em.upt.ro/) was internally developed.

In the same university, there is the Microsoft Student Partners (http://ms.upt.ro/elearning/), which organizes online courses addressed mainly to the University’s students. The virtual community uses the commercial portal Community Server for the students’ interaction.

The Faculty of Veterinary Medicine from Timisoara uses Moodle to offer its students a virtual environment where they can interact and access online materials (http://193.230.235.21/moodle/).

The “Transilvania” University in Brasov, uses its own portal (http://portal.unitbv.ro/) for unifying all the services the University offers to its teachers and students, amongst which: courses, forums, grades, “on-demand applications”. The Faculty of Economics uses Moodle as a LMS.

The Technical University of Cluj-Napoca also uses Moodle for delivering its online courses (http://moodle.utcluj.ro/).

Unlike the universities mentioned so far, “Spiru Haret” University in Bucharest and “Alexandru Ioan Cuza” University from Iasi (Faculty of Chemistry) opted for a commercial LMS: Blackboard: http://spiruharet.blackboard.com/ and http://www.chem.uaic.ro/ro/resurse/blackboard.htm.

The conclusion drawn from examples presented above is that universities prefer open-source educational systems. The main reason is the high prices of the commercial systems and the fact that eLearning is still in an incipient phase in Romania.

The most common open source content management system used is also in this case, Moodle. As a third option for having a LMS, universities opt for internal development.

There is also the possibility of combining features appertaining to different systems in order to obtain the most suitable solution. A university can adapt Moodle and also develop other different modules, to best suit its personal needs.

Fig. 2 presents a graph depicting the use of LMSs among universities in Romania. The criterion of classification is the character of the system: open-source, commercial or internal development.

As in the case of universities world wide, the preferred open source LMS is Moodle, with 60%, followed at a considerable distance by commercial systems (the majority is held by Blackboard) – 24%. On the last place there are the LMSs developed by the universities themselves.

This case study involved 17 Romanian higher institutions that use LMS as a means of delivering learning content to their students.
5 Conclusions
We have conducted these case studies in order to establish the current direction of CMSs in the field of eLearning. The results revealed the fact that open-source systems are preferred by most of the universities worldwide. This is also the case for universities in Romania: open-source software is by far the winner in the LMSs' competition.
A rather new tendency in education seems is the migration of universities towards virtual 3D systems, like Second Life, which offer free virtual space, tools and tutoring, eliminating thus the necessity of adapting and installing a portal on the university's server.
Slowly but steadily Romania is also directing its attention and efforts towards adopting new technologies into the educational process. The Distance Learning Centers are the promoters of these technologies into the universities.
With all the progress made in the last years in the direction of adopting and developing eLearning in Romania, nevertheless there are a set of shortcomings that have to be mentioned: a methodology for recognizing certifications obtained by following online courses does not exist and neither a special legal framework for attesting the status of eLearning workers (tutors, virtual professors and online shapers) [25].
The starting point of this study was the necessity to choose a portal for the “Politehnica" University's Distance Learning Centre. After studying the obtained results, both international as well as in Romania, we decided that the best option for our University is the use of Moodle in combination with self developed modules.

References