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Collaborative Development of Open Source E-Learning Platforms

Introduction

This article has been written jointly by the Centre Recherche Public Henri Tudor¹ and the Centre Virtuel de la Connaissance sur l'Europe².

Founded in 1987, the CRPHT has the prime mission of strengthening the economic structure of the Grand Duchy of Luxembourg through technology development and innovation, especially in the information and communication technology (ICT) fields. The CRPHT is deeply involved in a set of projects referring to knowledge management and e-learning.

The main task of CVCE is the creation, selection, diffusion and use of knowledge on the process of European integration, drawing on information and communication technologies. The development of the *European Navigator* knowledge base³ is entirely consistent with this task, offering a new means of learning about Europe.

In this context, both the CRPHT and the CVCE have a strong relationship with the University of Luxembourg⁴ and others European universities.

The Internet has been used for many years as a means of publishing information and static pages; it has since developed the use of distributed data processing and currently makes possible the provision of dynamic web services that become powerful platforms for integrating applications. E-learning solutions originally distributed on CD-ROM also keep pace with this technological progress.

In line with this, and with a view to meeting real market requirements, two LMS solutions have been developed in Luxembourg: *AnaXagora*⁵ by the CRPHT and *OpenMCMS*⁶ by the CVCE.

Although developed according to the same philosophy as 'Libre' Software, these two solutions meet different and complementary needs. Firstly, these products are targeted differently: *AnaXagora* is geared more towards use in a working environment, whereas *OpenMCMS* is designed more for general use. The means of disseminating the information is likewise different. For example, when a lesson is selected in *AnaXagora*, clearly defined and targeted content is made available. By contrast, *OpenMCMS* offers the user access to the entire body of information, making it possible to research material in accordance with their changing needs.

The two case studies given below serve to elucidate the characteristics of each solution.

Case study 1 : *AnaXagora* Platform

The CRPHT has conducted a wide-ranging national survey [1] in order to make an appraisal of e-learning practice in Luxembourg institutions and to establish the directions in which this multimedia form of education is evolving. Out of this study two factors have emerged: firstly, the potential for growth in this area is still large, given the relatively weak current penetration, and, secondly, interest in e-learning essentially targets job training, which, practically speaking, is manifested through the

¹ Called hereafter the CRPHT. <http://www.tudor.lu/> - <http://www.citi.tudor.lu/>

² Called hereafter the CVCE. <http://www.cvce.lu/>

³ <http://www.ena.lu/>

⁴ <http://www.uni.lu/>

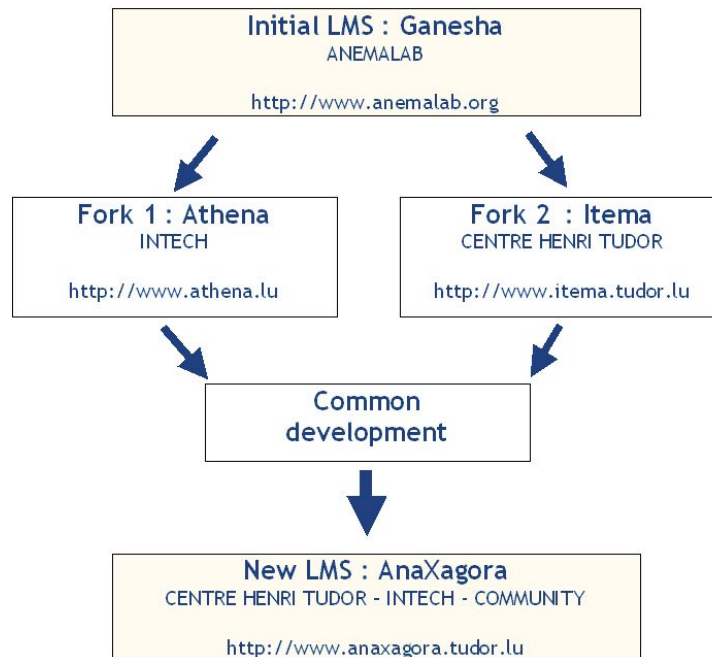
⁵ <http://www.anaxagora.tudor.lu/>

⁶ <http://www.openmcms.org/>

closely related functions of e-learning, business process modelling, knowledge management, and skills management.

Armed with this information, CRPHT has decided some time ago to invest time into an open-source e-learning platform. This paper explain the collaborative development process that we used to develop the *AnaXagora* platform.

Firstly, we have selected the open source e-learning platform *Ganesha*, from the French firm Anemalab⁷. Due to the fact that *Ganesha* is a free software, we have been autorised to modified it to suit our requirements, for example, by adding open-source collaborative tools. Those developpment produce a fork of *Ganesha* called *Itema* [2]. (Cf. Picture 1)

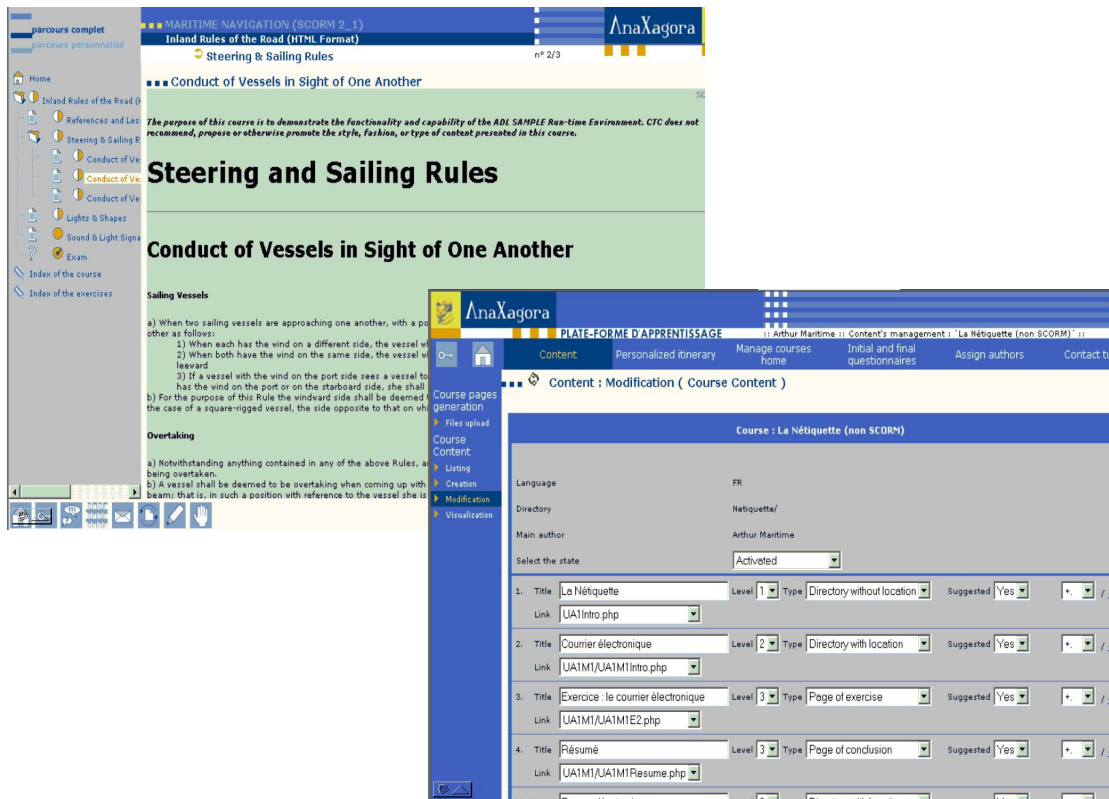


Picture 1: AnaXagora development phase

Then, we have opened our development process to other companies willing to participate. An important partnership was made with a company called Intech⁸ in Luxemburg. As the CRPHT, Intech had also selected and made modifications to the same *Ganesha* platform - second fork - before joining the partnership. Due to this collaboration the best of the 2 platforms has been extracted to create a new one, called *AnaXagora*, so we decided which of the components would be kept and which would be replaced. This partnership lead to the first release of *AnaXagora* which include the norm SCORM 2004 and a user manager module developed by the partenairship. (Cf. Picture 2 & 3)

⁷ <http://www.anemalab.org/>

⁸ <http://www.intech.lu/>



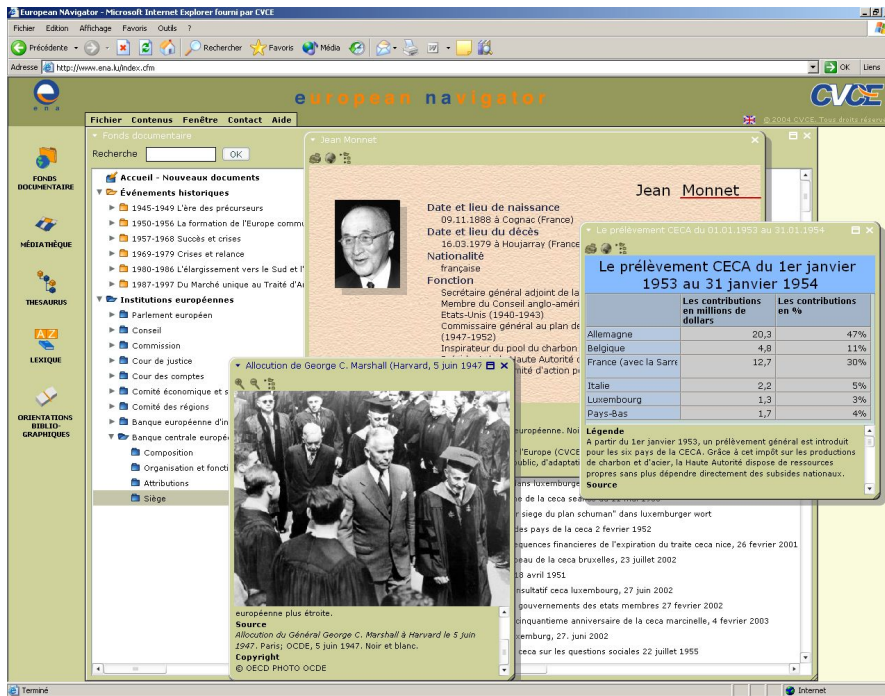
Picture 2 & 3: AnaXagora printscreen

After that, the collaboration will continue with other partners, specific projects or partnerships bringing new, enhanced functionalities, which benefit the client as well as the rest of the community, since they are also released under an open source license GNU GPL (General Public License). The session will particularly focus on the process that brought us an initial version of the platform, the choice of components, etc.

Case study 2 : European Navigator and OpenMCMS

This case study concerns the construction of an open-source platform for the management and dissemination of educational multimedia content over the Internet. The project is the brainchild of the CVCE and was designed to create a digital knowledge base that charts the historical and institutional development of a united Europe. The *European NAVigator*⁹ (ENA) knowledge base uses the latest in information and communications technologies and is developed by a team comprising many different disciplines (historians, legal experts, translators, librarians, graphic designers, programmers) for teachers, students and researchers. Since the project began, it has kept pace with developments in multimedia technology. ENA was initially distributed on CD-ROM, then by satellite over a network; today it is available entirely over the Internet. With more than ten years of practical experience in the distribution of digital information under its belt, the CVCE recently launched the *OpenMCMS* online training platform. This forms the underlying technical architecture for ENA (independent of content).

⁹ <http://www.ena.lu/>



Picture 4 : European Navigator printscreen

The *OpenMCMS* platform is therefore first and foremost the result of a pragmatic and original approach which is based upon extensive experience in the distribution of academic and multimedia content. The platform's originality is not, however, restricted only to its design; It harnesses the Internet and works as both a system for managing content and a multimedia application; thus *OpenMCMS* provides a one-stop solution for authoring/e-learning over the Web [3]. The process of creating content within *OpenMCMS* therefore consists of a collective activity geared towards producing information. The process of acquiring knowledge no longer has to follow the conventional logical linear pattern of lessons but allows both students and teachers to explore content freely. This approach contributes radically towards changing the way users (authors, tutors or students) relate to information and provides an interesting complement to the online teaching tools presently available, particularly in the context of knowledge distribution in the area of human sciences. These tools are not, however, the cornerstone of online teaching tools. As is often the case, the transition to new types of media or new teaching methods begins with a change in the way that people think, as they slowly accept new technologies.

As with *AnaXagora*, the *OpenMCMS* platform is released under the GNU GPL License. The decision to free up the code for *OpenMCMS* is a logical extension of the philosophy of the project: to harmonise tools and methods in order better to share and disseminate knowledge.

Conclusion

These case studies show that there is a real need for diverse, protean online teaching solutions. These solutions have huge potential for evolving, as they keep a watchful eye on the rapid progress of technology and on new requirements as they arise through use while the needs of users become ever more numerous and demanding. The Internet, as with all new media, is not yet used to its full potential and is often badly managed: The challenge of combining images, texts, video and audio; the cultural, social and linguistic diversity of Web users; the fact that knowledge acquisition is a very personal business; all show just how challenging the

provision of teaching tools over the Internet can be. Efficient products can only be developed through collaboration on a grand scale with the end result being that the best tools come to the fore through the process of natural selection. The Open Source philosophy is an extremely attractive alternative for the development of e-learning software and e-tutoring solutions. The fact that these tools are freely available to the web communities shows that we are en route to a new form of education, a way of teaching that is not restricted by local customs or culture, an eclectic mix that goes against the grain.

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