ELEONET - European Learning Object Network

Project Presentation

[8.2.2006]

doi: 10.1392/eleonet_pres

The ELEONET (European Learning Objects Network) project aims at extending the scope of the DOI to European eLearning environment, creating a market validated system to register DOIs and associated metadata on any Learning Object[1] produced by any kind of organisation, and building up a European repository of LOs metadata in order to enable immediate retrieval and re-use of educational content.

Within the eLearning value chain, the ELEONET will offer value both to LOs producers - allowed to assign DOIs and register metadata onto their contents, according to a schema interoperable with the existing metadata standards - and to educational communities - facilitated in the search and access to the wished products. A special attention will be paid to intermediaries between LOs rights holders and educational communities, such as DRM providers and clearing houses, since these are the most interested players in the standardisation of identification systems.
The network will assure the interoperability of IT systems of any kind of organisation involved in the process.

Moreover, ELEONET constitutes a significant effort for an effective cooperation among different DOI Registration Agencies, being the three mayor European Agencies represented within the Consortium (see below): mEDRA (through its funding partners AIE and Cineca), Nielsen BookData[2] and TIB[3] (through L3S research centre).

The ELEONET project, funded by the eTEN programme[4] of the EU Commission, started on January 1st 2006 and will last 18 months, closing at the end of June 2007.

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[1] For Learning Object is intended "any item or collection of content created with the intention of making it available and/or discoverable in digital form via the internet, either free or for a charge, to another party for teaching and/or learning purposes".

[2] British DOI RA: http://www.nielsenbookdata.co.uk

[3] German DOI RA: http://www.tib-hannover.de

[4] see http://europa.eu.int/information_society/activities/eten/index_en.htm

Fig. 1 - ELEONET role in the eLearning value chain

◄► DOI assignment and metadata provision
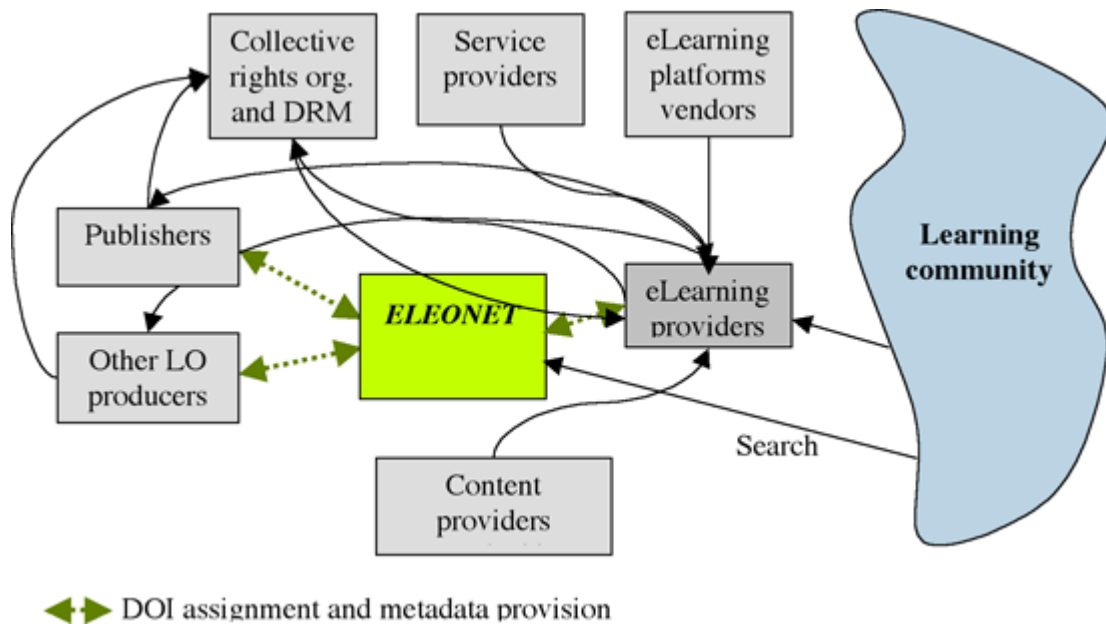
Main actors and benefits of the system

The development of the ELEONET will concern three categories of users along the eLearning value chain (fig. 1):

a. Content producers

ELEONET will allow any content producer to register DOIs on its own Learning Objects and thus to increase the opportunity to disseminate them to different learning communities, stimulating the re-use of educational content.

From the LOs producers' point of view, the adoption of the DOI means to assign a single standard identifier to any Learning Object at any level of granularity, describing it through a set of metadata according to a standard schema.

Content producers include different kinds of organisations: educational publishers are the first target group, but not the only one. Many other subjects entered the market in recent years, such as not-forprofit entities, technological and telecom enterprises, media companies other than publishers, multimedia publishers and so on. Sometimes educational organisations themselves are responsible for content production: universities, schools, individual teachers and training organisations often produce content.

All these actors are increasingly committed in LOs production.

The existence of a common framework for identification and description of LOs is perceived as a key factor to enhance the market.

b. Intermediaries

The DOI deals with a new dimension that is often underevaluated: the interoperability between the schemes for negotiating the IP rights.

Learning organisations (schools, universities, training organisations, etc.) started to negotiate rights for using modular Learning Objects, designed to be re-used in multiple contexts (fig. 2).

The customisation is pursued in this case through the creation of a particular bundle of LOs, and in terms of services provided besides the mere didactic material. This implies the need to negotiate rights on LOs, which can be done directly with the producers (publishers and other rights holders), or more frequently through collective rights organisations such as clearing houses, RROs (Reproduction Rights Organisations) and content aggregators usually providing DRM (Digital rights management) services.

These kind of intermediaries will widely exploit the existence of a standard facilitating the identification of LOs and the related rights management.

Fig. 2 - Learning Objects and rights market
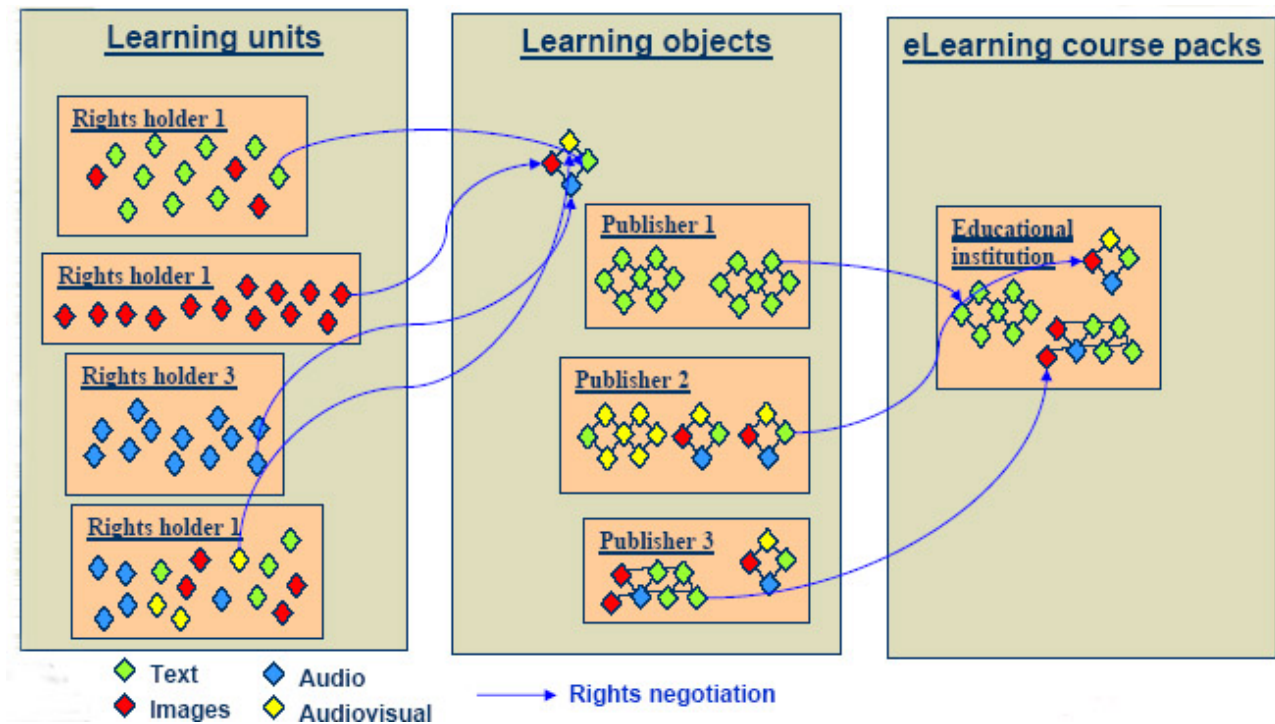
c. Final users

Learning communities will also benefit from the realisation of the project, since it constitutes the base to provide common catalogues of learning resources in the Internet.

The services implemented in ELEONET will enable single citizens or learning organisations to search LOs metadata and retrieve appropriate content at the preferred level of granularity.

This will hopefully create a single market, more accessible and user-friendly, that will promote interconnections and interoperability among the involved players.

From a commercial point of view, only content producers will pay for the service, while intermediaries and learning communities will access the system for free, being this a fundamental issue to ensure rapid adoption of the system.

Revenues will come from DOIs sales and registrant annual fees.

The search of sufficient critical mass is a key factor and this is pursued by the co-operation at international level: launching the services in four large European markets is the first step of an actual international strategy.

In order to achieve interoperability with the international eLearning community, the project will also build a "community of use" within the larger set of federated CORDRA[5] implementations.

After the validation of the system in the four countries involved, it would be easier to propose it in other countries, also exploiting the networks joined by the different partners.

Technical issues

Among the required components for the building up of the network, the needs for a DOI Registration System and a Local Handle System for DOI resolution will be discharged exploiting the already running functionalities provided by the three DOI Registration Agencies participating to the project.

This will permit to fully interconnect the system with the existing and forthcoming services developed by the RAs, in order to make users able to access other DOI-based applications as well.

The main task to fulfill will thus remain the development of a specific DOI Application Profile for Learning Objects, impling design and implementation of the following pieces of technology:

- Definition of a specific metadata schema for Learning Objects description. This is the most important technical aspect to validate: the objective will be to design a schema rich enough to provide value added services to final users but at the same time manageable for publishers and content producers at the moment of the upload of metadata during the registration. A preliminary metadata survey is planned, in order to investigate the possible interoperability with the main existing metadata standards: LOM, SCORM, ONIX, etc.

- A specific XML database for Learning Objects DOIs and metadata, analogue, with the required small adaptations, to the existing database for monograpic and serial publications

- A dedicated search engine providing advanced search facilities, interoperable with the search engines of defined third parties allowed to access the metadata database

- Interface for LOs producers, to upload metadata and register DOIs

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[5] CORDRA (Content Object Repository Discovery and Registration/Resolution Architecture, http://cordra.lsal.cmu.edu/cordra) is designed to be an enabling model to bridge the worlds of learning content management and delivery, and content repositories and digital libraries. It aims at identifying and specifying appropriate technologies and existing interoperability standards that can be combined into a *reference* model that will enable several key capabilities. The project was set up by ADL, the same US group that established the SCORM standards, with the collaboration of CNRI (who built the Handle System) and DTIC (a US government agency).

- Interface for the final users to search the database, available at the URL www.eleonet.org in the 4 languages of the partners involved (English, German, Italian and Spanish)

- Administrative and statistical tools, including an appropriate billing system

A strategic aspect is the centralisation of technological infrastructure in a single point (at Cineca), which will result in dramatic reduction of costs, particularly fix costs.

Project Consortium

The ELEONET Consortium is formed by:

1. Cineca (www.cineca.it), Computing Center representing 21 Italian Universities and mEDRA founder; it is the project coordinator

2. AIE (www.aie.it), the Italian Publishers Association, holder of the ISBN Registration Agency in the Italian linguistic area and mEDRA founder

3. Nielsen BookData (www.nielsenbookdata.co.uk), British company offering bibliographic data services to publishers, booksellers and libraries in over 100 countries worldwide; also DOI RA

4. Editrain (www.editrain.com), Spanish company specialised in providing services and selling products to book community with close relationships with the Spanish Publishers Association

5. L3S (www.l3s.de), Research Centre of the Hannover University, participated by the German DOI RA Technische Informations Bibliothek (TIB)

6. INDIRE (www.indire.it), Italian National Institute for the Educational Innovation and Research, with large experience in the field of metadata for educational content

The Consortium therefore comprises:

- three publishing oriented organisations (AIE, NBD and Editrain), with the opportunity to exploit synergies in the publishing field

- two technological partners (Cineca and L3S), with the necessary technical know-how

- two organisations with a large expertise in eLearning applications (Editrain and INDIRE), also bringing in the consortium the user point of view

- three partners belonging to the public sector (Cineca, L3S and INDIRE), meeting the need to create public/private partnerships in content industry