

Research books its place in the library of the future

In the digital age, cultural institutions face new technical and organisational challenges. They must improve and sometimes radically change how they acquire, store and preserve their collections as well as how they provide access to users. European research is helping them rise to the challenge.



European libraries and archives contain a wealth of material representing the richness of Europe's history, and its cultural and linguistic diversity: books, newspapers, films, photographs, and electronic publications such as CDs, databases, scanned papers or multimedia content published on the Web. But the value of libraries in the Internet area lies not only in their own resources but also in their role as gateways enabling access to other collections.

So, to address today's challenges, for some years now the European Commission has been working to help cultural organisations, particularly archives, libraries and museums, develop the technological infrastructure, applications and skills to ensure that Europe's cultural heritage can be both preserved and easily accessed in the information age. Since 2000, around 20 projects addressing issues relevant for digital libraries have been supported by the European Union under the umbrella of the IST programme. They account for funding worth some €54 million and involve 250 partners coming from over 180 different organisations.

Projects have tended to fall into three main categories. There are 'proof of concept' projects, which are technology-led, and there are service-based projects, with a greater emphasis on the institutions. Finally, there are the preservation projects, which are developing methods for digitising and thereby preserving audiovisual resources. The IST-backed research has some deeply challenging questions to address: for one, how can research support the role of institutions? And how can research allow the digital and institutional world to connect?

The European Library online

Suggestive answers to these questions are provided by several projects, including one possible model for the European Digital Library: [The European Library](#). A completed project which has recently become fully operational, The European Library is set to expand considerably in 2006. "It was always the intention that The European Library would become a real service," explains The European Library's head of Office, Jill Cousins. "And because we started out with a business plan, getting The European Library up and running for real has gone quite smoothly."

The project, set up initially by the British Library and seven other European national libraries, provides online access to an ever-growing number of national libraries (at least nine more will be added in 2006). "We try to be along Google lines," explains Cousins. "Trying to make a portal work in this way is, however, quite difficult, but we do provide a way to search across everything. The key idea behind The European Library is to make it easy for libraries to participate. The technology is quite neat – it uses what a library has already got, without insisting on a particular access mechanism, so that means there are low barriers to entry."

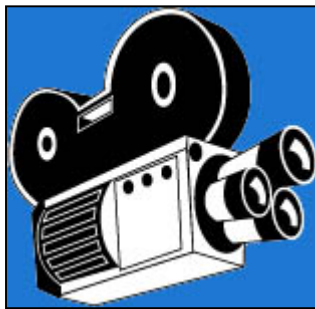
The European Library so far offers direct access to around a million digital items, and millions of catalogue reference records. Currently, there are around 25,000 users, but the number is increasing fast. "We've grown very rapidly without any marketing from zero users when we launched the site in March 2005," explains Cousins. "The next step is to market and expand it." She adds that the target market is wide – from students and academics to the general public – but that the wide user group (used to the scope of Google and other commercial applications) shares the same high expectations: "They think it's all already there!" she says, but points out that even though The European Library actually accesses around 80 per cent of the total material digitally available from the participating national libraries, there is a need for much more to be digitised. It is also worth noting that the online content is so far skewed towards the humanities, rather than science, a reflection of the cultural heritage status of the National Libraries of Europe. She adds that another major goal for The European Library is to refine its language capabilities: "So far, true multilingual search is not possible. Although the interface is multilingual, you cannot yet insert a search term and obtain results using the equivalents in all languages."



The European Library illustrates the enormous challenges, as well as the huge potential rewards, of the main goals of IST-funded research: to identify new technologies and services, with integration as the most important point. The new tools and services must frequently deal with, and ensure accessibility to, a huge range of content, from simple text documents to complex 3D information, such as avatar guides to archaeological sites. This is a huge jigsaw and it's not always easy to put the pieces together. Through the various research projects undertaken up to now, a useful body of experience is emerging - but we are still at the beginning of pulling everything together, and creating content that both human beings and machines can understand.

Ensuring digital preservation

Nevertheless, considerable success in doing exactly that is already being achieved in the area of preservation, one of the three major research areas and obviously a principal element of the European Digital Library. Audiovisual material is particularly vulnerable to being lost through technological obsolescence: an estimated 50 to 100 million hours of European audiovisual material (from nitrate to Beta SP) currently needs archiving.



The first steps in this breathtakingly ambitious task are being taken by the [PrestoSpace](#) project. "We've found 60 different video formats, which gives you an idea of the scale of the problem," says Didier Giraud, from INA, the project manager of PrestoSpace. "Each of these old formats has to be transferred so that computers can read it. Then we have hundreds of thousands of hours of radio programmes, dating back to last century, stored on shellac discs that are now near to impossible to read."

With its partner, Media Matters, the company well-known for providing turnkey solutions for the US National Library of Congress and Yale University, PrestoSpace has developed a 'black box' capable of deciphering obsolete media using robotics and electronic applications - and transferring it into digital data. Other aspects of the project include developing a database, "listing all the known characteristics of types and years of video tapes - rather like wines!" says Giraud, so users have a ready indication of video career quality. Another development is an algorithm for the restoration of video and audio materials, led by JRS, and storage and archive management tools (these are the responsibility of the BBC). Another partner, Italian broadcaster RAI, is working on an indexing system for documentation and publication of the contents.

The project is halfway through, and, according to Giraud, the first phase was mostly about defining user need, "the most vital part of the process." Nevertheless, certain applications developed by PrestoSpace are already highly advanced - for example, an industrial partner is already being sought for a new method of reading old 78 discs using an optical camera system which reads the grooves and translates them into digital data.

Offering new services

Preservation and 'proof of technology' applications aside, the third research area (although naturally, all three areas tend to overlap) is more focused on working with institutions to develop services, as with the [BRICKS](#) project.

BRICKS is a technically-innovative project that works with museums, libraries and other organisations to develop new services. BRICKS' Silvia Boi uses the 'Greek temple' metaphor to describe how the project operates. "The foundation provides the distributed network based on a peer-to peer architecture: each node has its own content and is connected to other nodes, allowing sharing," she says. "Then the pillars are the application scenarios that are built on this foundation. For example, the Living Memory application allows museum visitors to annotate a museum collection of war photographs with their memories, using innovative multimedia tools. The roof, meanwhile, plans the future of the project - the strategy for making it self-sustaining, and attracting new users, funding, and so on."

Silvia Boi emphasises that a fundamental condition for the success of the BRICKS project is "the creation of a community of organisations - mainly libraries, museums, and technology providers - which can participate and evaluate the platform." Many are very small, and can benefit from the network's shared resources and experience base.



"BRICKS allows them to be part of Europe's digital memory," says Boi. "For maximum accessibility, we use open source software – which means that there are no technological costs for small organisations. They can simply download the software and add their own content, metadata and so on. At the same time, they become visible to our network, and can share our knowledge, so there's high added value for them."

BRICKS currently has 50 member organisations, but is growing, and for the time being supports seven languages, although more can be added later. "Whether we have two or two million nodes, it doesn't matter," says Boi. "BRICKS is an expandable network." She adds that not all the members are small – the Uffizi library is an example of a big (and famous) one. International members also give BRICKS a worldwide, not merely European, presence. Such connections are important for the project credibility, and may help attract more investment: "We're now looking for new ways to fund the further running of the project, perhaps on the national level, so that we can work to put it on the market; our current funding is for making a prototype, not a commercial product."

As well as the BRICKS Workspace Web-based interface, the team is working on the BRICKS desktop, a stand-alone application that can be used without an Internet connection, and is currently creating demonstrations to show users how the whole package can be used. "In the final phase, the focus will be on the implementation of all services, then the final year will be dedicated to user training," says Boi. "Sustainability is important. Educating users is a big part of this project – technology without content and without users is nothing."

Other networking projects for sharing expertise include Minerva, which links institutions on a ministerial or equivalent national level, and [Calimera](#), which does the same with local and regional organisations, such as public libraries, museums and archives. "We have attempted to pull everything together, to establish a baseline," says Rob Davies, Calimera's coordinator. "So, for example, we have produced 23 guidelines on specific issues to do with digital services, from lifelong learning, to social inclusion. These are so far available in 30 languages – it is essential to reach practitioners in their own language."

Holding workshops also helps to share knowledge and raise awareness, he adds. A key issue addressed by projects such as Minerva and Calimera is helping cultural institutions to understand usability, he believes: "People are used to Ebay and Amazon, so we need to provide similar services in the cultural heritage sector."

Like preservation and technology, services will be a vital aspect of the future European Digital Library. Of course, developing the applications to maximise these three key features remains a huge challenge, but IST-funded research projects are providing useful foundations for the future. As Rob Davies says, "Research alone cannot solve the problems, but it can certainly contribute to the solution."

Contact:

Jill Cousins
The European Library Koninklijke Bibliotheek,
the National Library of the Netherlands
Tel: +31-70-3140952
Email: Jill.Cousins@TheEuropeanLibrary.org

Didier Giraud
Institut national de l'audiovisuel
Email: dgiraud@ina.fr

Silvia Boi
Metaware
Tel: +39-050-3871400
Email: s.boi@metaware.it

Rob Davies
MDR Partners
Tel: +44-208-8763121
Email: rob.davies@mdrpartners.com

Source: Based on information from BRICKS, Calimera, PrestoSpace, TEL, 1 Feb 2006

Legal notice:

This feature article is published by the IST Results service and offers news and views on innovations, emerging from EU-funded Information Society Research.

The views expressed in the article have not been adopted or in any way approved by the European Commission and should not be relied upon as a statement of the Commission or the Information Society and Media DG.

© European Communities, 2005

Reproduction is authorised provided the source is acknowledged.