Editorial

Notwithstanding the title "Newsletter 6", this is actually the first paper version of the DELOS Newsletter, which until now has been published only on the DELOS web site. DELOS is the Network of Excellence on Digital Libraries, and while we are all working to make digital libraries the main and eventually the only source of information, for the time being we believe that there can be still some use for traditional dissemination media like this Newsletter on paper.

This is a somewhat condensed version of the Newsletter (the complete one is of course on the DELOS web site) as there are a number of interesting events where DELOS has been involved lately, and we have tried to squeeze as much as possible in four pages.

There were two very successful Summer Schools. The school on Preservation was at its second edition, given the success of the first one. The school on Multimedia was organized jointly with MUSCLE, another Network of Excellence whose activities match well with those of the DELOS research cluster on Audio/Visual. Another topic where DELOS has been very active recently is the "Digital Library Reference Model", which was recently discussed at a Brainstorming meeting organized by DELOS, with the participation of a number of international experts. Some concepts of the model were useful also during another Workshop held at the annual ELAG Conference, whose topic was the European Digital Library. Then, in the frame of the ongoing cooperation between DELOS and TEL, we report briefly about a technical meeting whose aim was to define a feasibility study addressing the problems of multilinguality in a system like TEL. Finally, we have a brief interview with one of the participants in the DELOS Researcher Exchange Program.

To be updated about the DELOS initiatives, please visit frequently our site (**www.delos.info**) or, even better, subscribe to the DELOS RSS news feed. If you have an item to contribute either for the Newsletter or for the web site, please do not hesitate to contact us at **delos-team@isti.cnr.it**

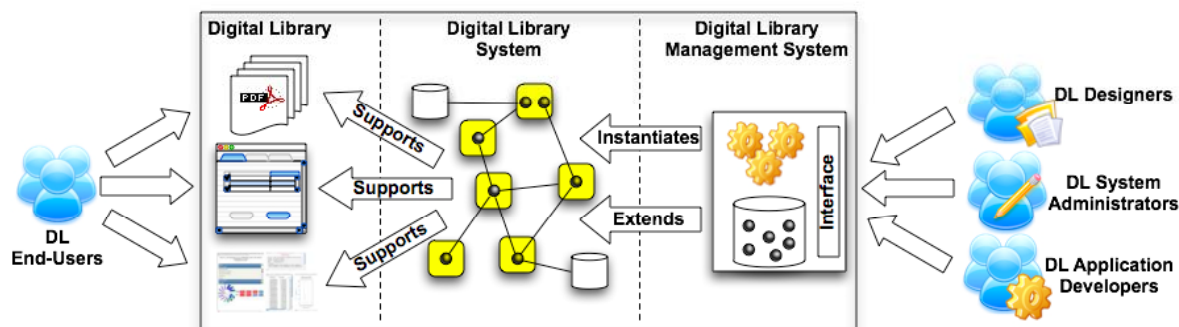Costantino Thanos, DELOS Scientific Coordinator

The 5th DELOS Summer School: Digital Preservation in Digital Libraries

The 5th DELOS Summer School was held at the Centro Studi "I Cappuccini" in San Miniato, Italy, over 4-10 June 2006. The event was organised by the DELOS digital preservation cluster, with additional sponsorship from the Digital Curation Centre (DCC), the Fondazione Giangiacomo Feltrinelli and the Fondazione Rinascimento Digitale. The school comprised ten three-hour sessions, built on cutting edge research being conducted by the distinguished invited lecturers. The main objective was to provide the students with an appreciation of the issues surrounding digital preservation within the context of digital library development and management, and to provide an understanding of the core research in the area of digital curation and preservation. The School was attended by more than 50 students, from 11 different countries, and the average overall rating was 4,55 in a scale of 5. Complete information can be found at **www.delos.info/PreservationSchool**. This was the second edition of the DELOS Summer School on Preservation, which was held for the first time in June 2005, in Sophia Antipolis, France. Given the success of the school and given the relevance that the preservation issue is getting, now that more and more information is digital, you should expect other editions in the future.

ELAG 2006 Workshop: The Technological Route to a European Digital Library

The ELAG 2006 Conference, held in Bucharest, Romania over 26-28 April 2006, hosted a workshop on the European Digital Library (EDL) with the main objective of stimulating discussion on some of the main technical topics related to digital libraries, and how those topics may affect the implementation of the EDL. The main topics proposed for discussion at the workshop were: what is a digital library ?; what could be the architecture of the EDL ?; which tools and services should be provided by the EDL ?

With reference to some of the concepts developed in the *DELOS Reference Model for Digital Libraries* (see below the Digital Library Manifesto), which were presented at the Workshop, it was agreed that the main user concepts could be abstracted in three roles: the end-user, the librarian and the digital library application developer. The librarian role could be further sub-divided into three roles: the end user librarian, the digital librarian (or DL designer) and the system librarian (or DL system administrator): the last two roles define and generate an instance of a Digital Library (i.e. a Digital Library System) by using the tools and the components available from a Digital Library Management System.

Considering as a starting point the present TEL system (www.theeuropeanlibrary.org), the discussion considered also those aspects not currently present in the TEL system, which would enhance the emerging EDL. Simply stated, the general feeling was that the EDL should provide value-added over Google, i.e. a European combined thesaurus/authority, multilinguality, collection navigation, creation of "virtual collections"; annotation and collaboration tools. The conclusions and the issues debated during this ELAG workshop overlapped considerably with the issues and recommendations that came out of the Brainstorming meeting organized by DELOS in December 2005 (**www.delos.info/EDLBrainstorming**), which was set up to discuss the questions posed by the Commission about the establishment of a European Digital Library. Complete information about the workshop can be found at **www.delos.info/ELAGWorkshop**.

DELOS Digital Library Manifesto Discussed with Invited Experts

Over the last year DELOS has been addressing the problem of defining unifying foundations for Digital Libraries, as the DL underlying technologies come from several different areas. In a recent report entitled *Digital Library Manifesto* DELOS is proposing a reference model for Digital Libraries. This model establishes an abstract framework for understanding significant relationships among the entities within the DL environment. It is based on a small number of unifying concepts but is not directly tied to any standards, technologies or other concrete implementation details.

The reference model illustrates the relationships among three "entities" that play a central and distinct role in the DL world, namely the *Digital Library*, i.e. a (possibly virtual) organization that collects, manages and offers to its users specialized functionality on that content; the *Digital Library System*, i.e. a software system that provides all functionality offered by a particular Digital Library; and the *Digital Library Management System*, i.e. a generic software system that incorporates all functionality that is considered foundational for Digital Libraries and provides the appropriate software infrastructure to both produce a basic Digital Library System and integrate additional software providing more

refined, specialized, or advanced functionality. Each entity is then characterized in terms of six main concepts: *information domain, user, functionality, quality, policy and architecture*.

The Manifesto was presented at the Reference Model Workshop organized by ISTI-CNR at the Villa Grazioli in Frascati, Italy over 1-2 June 2006. The objective of the workshop was to discuss the proposed model with an invited group of key international experts in the digital library field. As Patricia Manson, Head of the Unit "*Technology-Enhanced Learning & Cultural Heritage*" of the European Commission pointed out in her introductory speech, an agreed upon and stable Digital Library Reference Model could definitely help the Commission in better defining the priorities of the 7th Framework Program and in setting up the relevant political and operational action at EU level, necessary for the establishment of a true European Digital Library.

Many useful comments and recommendations were received during the workshop and collaboration agreements were established. In particular, it was decided to hold another similar workshop in 2007, enlarging the number of participant organisations. Complete information about the Workshop and the Reference Model can be found at **www.delos.info/ReferenceModelWorkshop**.

Joint DELOS- MUSCLE Summer School on Multimedia Digital Libraries

The first DELOS Summer School on *Multimedia Digital Libraries, Machine learning and cross-modal technologies for access and retrieval* was held over 12-17 June 2006 in San Vincenzo, Italy. The school was

organized jointly with MUSCLE, another Network of Excellence. The two NoEs address complementary aspects of research into the management and processing of multimedia data: DELOS working on next-generation digital libraries, with a specific research cluster devoted to audio and video processing; while MUSCLE working on the exploitation of multimedia data retrieval and analysis for machine learning. Relying on the expertise of MUSCLE and DELOS, the summer school presented software tools and research strategies to enable users to move away from labor-intensive case-by-case modelling of individual applications, and allow them to take full advantage of generic adaptive and self-learning solutions. The dense program of nine half-day sessions, covered theoretical and practical aspects in computer vision; text, audio and image processing, compression and storage; machine learning and information retrieval; multimedia data mining; cross-media analysis; user interfaces and interoperability.

The number of registrations proved to be unusually large: the initial maximum of fifty students was increased to sixty in response to demand, with attendees coming from 12 European countries as well as Algeria, Canada, India, Lebanon and Tunisia. The School also set in place an innovation by offering the optional opportunity of a final examination, as now required in the Italian PhD Schools: 22 students sat and passed the examination on the final (very hot!) afternoon of the School.

Altogether, this Summer School highlighted leading research achievements and improved general knowledge in these fields. It also defined a common vision of future research orientations in multimedia datamining, and provided a significant opportunity to exchange experiences, share views and address common problems. It is expected that the school will be repeated in the future. Further information and material from the lessons is available at **www.delos.info/MultimediaSchool**.

TEL-DELOS Working Meeting on Multilinguality in the European Library

Last April colleagues from TEL and DELOS held a meeting with the aim of defining a feasibility study addressing the problems of multilinguality, to understand possible solutions and to produce simulations of output and user presentations. The first part of the meeting consisted of presentations to illustrate the architecture of the TEL system and to explain the background of the multilinguality issues. The second part

of the meeting moved on to discuss the different aspects of multilinguality in terms both of what was possible and desirable to implement. The principal outcome of the discussion was the establishment of four options for further analysis:

- Browsing via multilingual thesauri - where users select keywords for searching from the thesaurus
- Isolated translation - where the system translates users' queries
- Pseudo-translation - where users search in their own language but the records have been translated (the initial focus will be on French-to-English and German-to-English, but additional languages will be considered).
- Similar document search - where users select a document and can request similar documents. This will require full text or good abstracts.

While the technical implications might be very complicated, the user scenarios described of each alternative seemed to be quite simple as far as the user interface and user interaction were concerned. From a TEL perspective, the first two options seem to be more easily implemented given the existing architecture and current contents of TEL. TEL searches over multiple targets plus a central index. More information about the cooperation with TEL can be found at **www.delos.info/TELCooperation**.

DELOS Researcher Exchange: Interview with Ingo Frommholz

The DELOS Researcher Exchange Program (**www.delos.info/ResearcherExchange**) gives to a researcher the possibility of spending a short period of time (typically from 2 to 4 weeks) at a receiving DELOS research organization, to communicate more closely with fellows researchers working in the same field, possibly in a project carried on jointly with the sending organization (which need not be a DELOS partner). In the frame of this program, last April, Ingo Frommholz, who works on information modelling at the University of Duisburg, spent three weeks at the University of Padova, working with colleagues doing research in annotation-based information retrieval. Here is an excerpt of a brief interview with Ingo.

DELOS Newsletter: What was the research work you did in the context of your exchange?
Ingo Frommholz: I am interested in annotation-based information retrieval, which means document search using annotations or discussion search (i.e.. searching for relevant annotations in a given discussion). These methods need to be evaluated, and traditional information retrieval evaluation measures like recall and precision might not necessarily prove sufficient. I am pleased to say that during the period spent in Padova we prepared a joint paper about our work, which was accepted for the "Workshop on Digital Libraries in the Context of Users' Broader Activities" at JCDL2006.

NL: What were the main benefits of your stay in Padova as regards your professional work?
IF: One of the main benefits was to get opinions about my ideas and work in general from people outside my own institution, who inevitably can offer a different perspective given their different background. On occasions my colleagues questioned things that I had taken for granted, and that was extremely useful since these discussions raised a whole range of new ideas and thoughts.

NL: What do you think you got out of the exchange from a more personal point of view?
IF: In my case it was the first time I had ever stayed in another country, except for holidays. It was nice staying in a different city with different people, and it was very interesting to see at first hand how research is done not only in another institution but also in another country.

NL: Would you recommend a researcher exchange to others and why?
IF: Yes, I would recommend it! It broadens your horizon, you see your work in a different light, and you hit upon new ideas and approaches. Plus the benefit of living in another country for a while, but engaging not as a tourist, but in a more focused way, which is a very valuable experience.