



MINUTES OF THE WORKSHOP ON SEMANTIC INTEROPERABILITY

A joint initiative of the EU projects: **Bricks Delos Epoch**

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Projects

Participants:

BRICKS

DELOS

EPOCH

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Workshop's Goals:

- Familiarize each project with the others
- Find shared fields of interest and prepare a joint plan of research activities in order to mutually benefit and avoid duplication of effort.
- Prepare a draft proposal for a joint training and dissemination plan of the three projects.

Each project presented its main research agenda and its activities pertinent to the workshop's goals:

Bricks (IP):

The **BRICKS** Project – **B**uilding **R**esources for **I**ntegrated **C**ultural **K**nowledge **S**ervices – researches and implements advanced open source software solutions for the sharing and the exploitation of digital cultural resources. It aims at integrating the existing digital resources into a common and shared Digital Library, a comprehensive term covering “Digital Museums“, “Digital Archives“ and other kinds of the digital memory system. The **BRICKS Community** is a worldwide federation of cultural heritage institutions, research organisations, technological providers, and other players in the field of digital libraries services.

Particularly relevant to the workshop's agenda are the following Bricks' activities:

- Reliance on a distributed open infrastructure, in order to reduce the cost of development and deployment of new services by maximising the re-use of existing results, and to reduce maintenance costs by eliminating the need for a centralised organisational and/or technical infrastructure;
- Seeing global semantics as an evolutionary process, emerging from local interactions and agreements in order to overcome linguistic and ontological barriers and create a shared knowledge space.



Moreover, some application scenarios proposed by Bricks are applicable both to Delos and Epoch:

- Archaeological sites – deals with the possibility of sharing knowledge and information on complex cultural heritage objects, in order to understand how to use IT tools to aggregate, compare and distribute information and data.
- Small and medium sized museums – this scenario foresees the creation of services for training, expertise transfer and discussion of internal processes of museums.

The Decentralized Digital Management developed by Bricks, the planned BRICKS metadata schemas and XSLT style sheets for the most popular metadata standards in Cultural Heritage and the graphical user interface (GUI) for creating and updating the configuration file may serve as a real basis for further cooperation between the three projects, at tool development level.

Delos (NoE)

The DELOS network is conducting a joint program of activities aimed at integrating and coordinating the ongoing research activities of the major European teams working in Digital Library - related areas with the goal of developing the next generation Digital Library technologies. DELOS also aims at disseminating knowledge of digital library technologies to many diverse application domains. Its main objectives are:

- define unifying and comprehensive theories and frameworks over the life-cycle of Digital Library information,
- build interoperable multimodal/multilingual services and integrated content management ranging from the personal to the global for the specialist and the general population; the Network aims at developing generic Digital Library technology to be incorporated into industrial-strength Digital Library Management Systems (DLMSs), offering advanced functionality through reliable and extensible services.

Delos activities in WP5 (Knowledge extraction and semantic interoperability) and WP8 (Dissemination) are particularly pertinent to the workshop's goals. The thematic area of Semantic Interoperability addresses the ability of different information systems to communicate information consistent with the intended meaning of the encoded information, such as descriptions of digital or physical objects for both learning and research, collections of those objects, collections of datasets and resources used in the wider cultural heritage sector and in e-research. Problems of semantic interoperability occur at the level of data structures, terminology used and the identity of referred particulars such as persons, geographic units, objects and others. In addition, the application of algorithms for mining and analysis of digital resources (text, data, complex objects), offers exciting opportunities for new knowledge extraction and the re-use of data and information in new ways.

Epoch (NoE):

The overall objective of the network is to provide a clear organisational and disciplinary framework for increasing the effectiveness of work at the interface between technology and the Cultural Heritage of human experience represented in monuments, sites and museums. This framework encompasses all the various work processes and flows of information from archaeological discovery to education and dissemination, to the public and the scientific community, by means of new available technologies in the modern information society.



Particularly relevant to the workshop's goals are the efforts invested by Epoch related to standards, for CH documentation, representation of 3D objects and geo-spatial data, and its training and dissemination activities, focusing on the promotion of standards, create liaisons with other standards committees and produce relevant guidelines.

Consequently, Epoch is been developing a data mapping tool to CIDOC-CRM compatible form (AMA – Archive Mapper for Archaeology), in order to facilitate a multi-lingual interoperability between CH datasets, both structured and un-structured. Though initially the mapping tool is designed to map archaeological primary documentation, it is planned to expand its functionality to other domains of the research pipeline as well (archiving, investigation and publication).

A complementary tool developed by Epoch is MAD (Managing Archaeological Data), a web-based tool for the management of XML archaeological datasets, entirely based on XML and W3C technologies. The tool is designed as a web application and it is developed on top of eXist, an Open Source native XML database, written in Java, supporting XPath/XQuery features and dynamic XSLT transformation and presentation of documents and query results.

Summary of the workshop

It has been proposed by the participants of the meeting to:

- Continue these meetings on a regular base for exchange of information, practices, etc.
- Update the reports to the EU including a specific reference to these activities.
- Share information about these initiatives on each project's website and other channels of information (newsletters, mailing lists, etc.).
- Update the dissemination plan of the projects to include information regarding the shared series of workshops.
- Next meeting to be at Delos' workshop on the 15th of February 2007.
- Four common research subjects have been identified throughout the meeting:
 - Working towards a common core ontology in order to address data structure heterogeneity.
 - Easy-to-use mapping technology between local data structures and a core ontology and generation of data transformation algorithms from mapping specifications.
 - Addressing the problem to massively generate, manage and preserve knowledge about co-reference, i.e., if multiple sources talk about the same item.
 - (Cross-domain) discourse analysis & understanding of real research questions in order to design systems effectively supporting research hypotheses building and verification.
- Attempt at an integration of the three projects' work and expertise related to the aforementioned subjects through a concrete case-study (Epoch team has proposed several case-studies, such as archaeological and/or museum databases).
- Create a shared training programme to include three projects' communities.
- Propose a joint paper at the next CAA and/or other conferences/events

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