

Issue Four  
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MOBilearn is a worldwide European-led research and development project exploring context-sensitive approaches to informal, problem-based and workplace learning by using mobile technologies. The MOBilearn project



consortium involves 24 partners from Europe, Israel, Switzerland, USA and Australia. Their competencies are integrated and extended by a Special Interest Group which includes more than 250 of the World's leading organisations, active in Information Technology.



## Developing the MOBilearn open access architecture

A key objective of the MOBilearn Project is to improve the knowledge level of individuals by developing learning processes that are both time-efficient as well as being cost-effective. It is focusing on three representative groups: *workers* - to enable them to meet their job requirements and to update their knowledge continually; *citizens* as members of a culture, to improve their learning experience while visiting a cultural city and its museums; and *citizens as family members* who need to have simple medical information for everyday needs.

Four scenarios have been identified by the project for testing out the learning processes and have been described in [Issue 2](#) of this newsletter. Depending on availability, various mobile devices are being utilised with various communication systems. However, new devices and methods of communication are emerging all the time and existing ones, over time, are starting to become more viable in a learning context - as costs go down. Therefore, in order to ensure "future proofing" the MOBilearn project is developing an architecture that is not dependent upon one type of device or communication system.

Taking the scenarios as a starting point it has identified a number of components or services that will be required by the various types of users – mobile learners, tutors, moderators, learning content authors and administrators. Top-level components and their associated services have been identified like the:

*Mobile Device* – this could be a PDA, mobile phone, tablet PC, wearable PC or a laptop computer with an associated service.

*Portal* – the central unique access point to services for the user. Associated services include those for authentication, authorization, billing, content delivery logging-in, user registration, a change of quality or an adaptive user interface service.

*Content* – involving services for the management of content or learning objects and related features involving content creation and

management, annotation, rendering, tracking, customization and personalization, information filtering and test creation and management services.

*Content and User* – involving the management of user profiles

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### Further information on the MOBilearn Project and the Special Interest Group contact :-

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MOBilearn is a 30-month, 8 Meuro, project co-funded by the European Commission (DG INFSO, D/3-Education and Training), within the IST programme of FP5. US and AU partners are hoping to be funded by US National Science Foundation and AU Department of Education, Science and Training.

“note change of date for the MLearn2004 Conference”

## **MLEARN2004 Conference “learning anytime everywhere”**

**5-6 July 2004, Rome, Italy**

The third international conference MLEARN2004 – “learning anytime everywhere”, jointly organised by two European projects - MOBIlearn and m-learning - will take place at Odescalchi Castle, Bracciano Lake, Rome on 5-6 July 2004. It will cover mobile and ambient learning. Further details from <http://www.mobilearn.org/mlearn2004>

**Deadline for calls for papers is 16 April 2004.**

The main purpose of the conference is to bring together people who are interested in



developing opportunities, systems and content for learning with mobile and wireless devices and networks. Speakers and delegates will include practitioners, designers of mobile learning materials and services, hardware and software technology developers and researchers from mobile learning projects around the world. There will also be representatives of the European Commission and the Italian Ministry of Research and Education.

This is an opportunity to find out what is going on now in the field of learning with mobile devices and ambient intelligence, and to share ideas and experiences, contributing to the future research agenda of technology-enhanced learning.

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*Location and Navigation* – This could include a geographical information management service, indoor or outdoor positioning services.

*Collaboration and Communication* - representing the umbrella of services related to collaboration and communications between two or more persons, either in a synchronous manner or asynchronously and independent of data type, such as text, pictures, graphics, voice, video or applications. It also provides the session and user management functions for collaborative sessions.

*Context* – this provides a means of gathering, maintaining and processing a store of context data in order to produce recommendations (in the form of a ranked list) from the currently available content and options. Data can be gathered from other services, including automated data input such as sensors, manual input from the user and generalised preferences.

*Multimedia Delivery* – involving the delivery of content and annotations.

*Remote* – involving the remote control of applications and devices.

*General* - This could include digital repository management, information package creation and management, seamless roaming or vocabulary creation and management services.

### **Open Mobile Access Abstract Framework**

Each of these component services requires software tools to be developed and to enable them to interoperate with other service components, some of which could come from other suppliers. In order to drive forward developments towards interoperability the MOBIlearn Project is developing an “Open Mobile Access Abstract Framework” (OMAF). It is also aimed that this will help to encourage and exploit the usability of software through an

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object orientated software development approach. This will thus enable single re-usable services to be used on different mobile applications.

This approach is based on an extensive study of existing best practices including those from the Open Knowledge Initiative (OKI) and the IMS Abstract Learning Framework (ALF). The Open Knowledge Initiative is defining an open and extensible architecture for learning technology, although specifically targeted to the needs of the higher education community. OKI provides detailed specifications for interfaces among components of a learning management environment and open source examples of how these interfaces work. The OKI architecture is intended to be used both by commercial product vendors and by higher education product developers. It provides a stable; scalable base that supports the flexibility needed by higher education as learning technology is increasingly integrated into the education process.

IMS is developing an Abstract Learning Framework that will guide the creation of future specifications – i.e. guidelines and suggestions for implementing something. They are a tool to help the developer, implementer, or administrator make decisions. Specifications, unlike standards, capture rough consensus and evolve rapidly. The framework is a device to enable the IMS to describe the context within which it will continue to develop its e-learning technology specifications, but it is not an attempt to define the IMS architecture, rather it is a mechanism to define the set of interfaces for which IMS may or may not produce a set of interoperability specifications.

In the cases where IMS does not produce a specification then every effort will be made to adopt or recommend a suitable specification from another organization. It is the intention of IMS that this Abstract Learning Framework and the associated IMS specifications produced to enable the exchange of information between the identified services will be adopted in a manner suitable for a particular system requirement.

In developing the MOBILEarn Open Mobile Access Abstract Framework a Unified Modelling Language (UML) methodology was adopted with the internal communication system completely XML-based.

The project is keen to get the views of others who are working in this area in order to reach a global consensus on the development of mobile learning systems and services. It is keen to avoid a situation that has already emerged in the mobile device industry of competing and often incomparable operating systems – that is slowing down the development of content across platforms. If you would like to discuss these developments contact the Project Coordinator - Giorgio Da Bormida email: [g.dabormida@giuntilabs.com](mailto:g.dabormida@giuntilabs.com) or the Project Technical Manager - Giancarlo Bo email: [g.bo@giuntilabs.com](mailto:g.bo@giuntilabs.com).

Having defined the OMAF model, the project will focus on activities for services identification, their functionalities and interface specifications. It is reviewing existing technologies for mobile applications and identifying the most suitable solutions for developing the OMAF instantiation, to be used in real users trials during 2004.

A more detailed paper can be found at: [http://www.mobilearn.org/download/results/OMAF\\_final\\_submssion.pdf](http://www.mobilearn.org/download/results/OMAF_final_submssion.pdf)

*“work based on existing best practice including that of the Open Knowledge Initiative and the IMS Abstract Learning Framework”*

*“identifying existing technologies suitable for developing within an open mobile access environment”*

## Hot News

Nokia have just announced plans to launch their new 9500 Communicator - a tri-band GSM phone/PDA that will also have a wireless LAN connection using Wi-Fi 802.11b and E-GPRS (EDGE) technologies. It is due to be available towards the end of 2004 in volume. See [press release](#)



## Other News

### Creation of a digital archive using mobile devices

Due to produce some interesting result later this year, the Chimer Project (<http://www.chimer.org>) is developing and implementing applications for mobile technologies in a cultural heritage environment. It is based on a combination of GPS (geographical positioning systems) and GIS (geographical information systems) technologies. A GIS platform serving multimedia information to multiple hand-held devices is being implemented with device portability being a key point of the project. The information can be retrieved through any Pocket PC, Tablet PC and the new generation of Ericsson/Samsung/Nokia 60 series of Java-based mobile phones. Video, audio, photos, vector maps, routes for GPS or Arc Pad Pocket PC shape files, and satellite images can be retrieved.

The project is working with twelve-year-olds in different parts of Europe under the guidance of museologists and teachers in building digital maps combining geographical coordinates defined by using GPS devices with the creative use of mobile technology and digital cameras. In this way, children from Bohemia to A Coruña and from the Netherlands to Vilnius, will combine drawings and photographic images with their own comments on items of interest. They are gradually creating a digital archive of their own towns, villages and surrounding communities which should enhance interest in these regions, not only for children, but for other age groups.

A more detailed article can be found at <http://www.cultivate-int.org/issue8/chimer/>

### Tate Modern Multimedia Tour

The Tate Modern in London has recently completed the second Multimedia Tour of the galleries using a PDA. Unlike the existing audio tours currently used in UK museums, the Tate Modern Multimedia Tour allowed information about selected artworks on display to be provided to visitors in a variety of different media on a portable screen-based device. Visitors were able to see video and still images on the screen that provided additional context for the art, and they could take part in interactive opinion polls and games that explored the works on display..

Evaluation of a first Multimedia Tour, that was piloted during 2003, suggested that the multimedia format particularly appealed to a younger audience. More information can be found from the web site at <http://www.tate.org.uk/modern/multimediatour/default.htm>

The MOBIlearn Project has also conducted an internal evaluation of the Multimedia Tour.

### Mobile learners wanted to take part in study

The MOBIlearn Project is looking for people to take part in a study of their everyday mobile learning. As part of the work covering pedagogical methodologies and paradigms, MOBIlearn partner - the University of Birmingham - is planning a study of people's everyday learning activities and experiences, with a focus on where they learn and the technologies they use. Participants will have a unique opportunity to reflect on their everyday learning by identifying their own learning needs and to understand their learning practices. In return, the project expects to gain valuable insights into how mobile learning fits into everyday learning patterns, the contexts in which learning takes place, and what people learn about while on the move.

The study will involve keeping a diary of normal learning activities for two weeks using a pre-formatted diary that will be provided. It will take about 10 minutes per day to fill in the diary. Participants will also be asked to complete a short questionnaire regarding their learning episodes and projects that they are participating in. This will take about 20 minutes once every two months for eight months,.

If you are interested in taking part, please contact (before 20 March 2004):

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*"mobile technologies in a cultural heritage environment"*

*"allows information about selected artworks on display to be provided to visitors in a variety of different media on a portable screen-based device"*