

## P4P Application Based Open Source

**The goal of the PABIOS project is to develop an Open Source P4P (People-for-People), an extension of P2P (Peer-to-Peer) framework oriented to the e-learning universe. The platform will enable dynamic creation and provisioning of distributed and user-personalized services that can be accessed from different types of devices, taking into special consideration 3G and above cellular phones.**

### Main focus

The overall vision of the PABIOS project is to develop a technology for workgroups towards a unique service environment where P4P applications can be developed and deployed. The developed framework will ensure the availability from a broad range of terminals

(with emphasis on 3G mobile devices), as well as a largely shortened services development process thanks to services development functionalities not present in the current market alternatives (i.e., Web services). The main innovation activities will be focused on:

- Integration of existing technologies (networking, communication and information technology services) into a unique service environment.

- Development of building tools/functions for rapid and cost effective development of P4P applications and services.

- Ambience adaptation: to the user location, access device, personal preferences and information from previous sessions.

- P4P application server, including horizontal services such as billing, validation, fault tolerance, etc. In that way, an existing application server will be upgraded to gain e-learning service capabilities.



## PABIOS

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Start Date: July 2005

Completion date: June 2008

### Partners

Telefónica I+D, Spain

Educaterra, Spain

Universidad Politécnica de Madrid

Universidad de Valladolid, Spain

### Co-ordinator

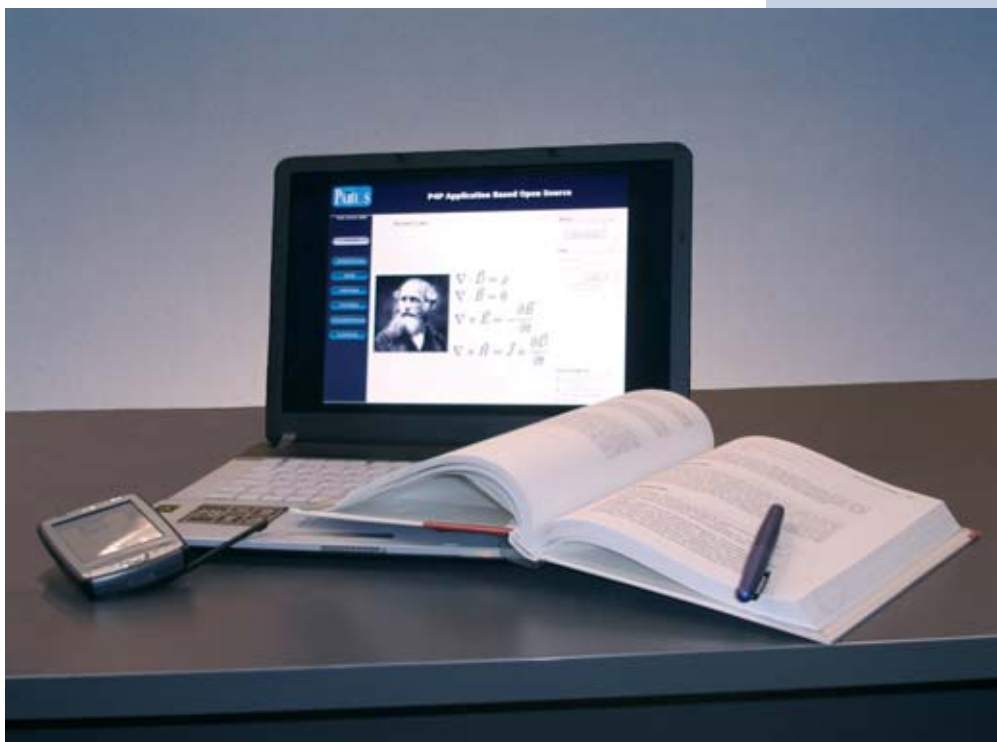
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### Project web site

[www.celtic-initiative.org/projects/pabios](http://www.celtic-initiative.org/projects/pabios)



## Approach

PABIOS project aims to develop an enhanced, rich featured, e-learning platform. Technical and business models will be devised to identify components, platforms and interfaces needed to support PABIOS use cases and requirements.

Following the architecture and model patterns defined in the modelling stage, work will be split into four main tasks. The framework components and platform will be composed of a set of reusable units and infrastructures providing common functionalities to allow maximum reusability in development activities. The integrated communication platform will enable the user to retrieve and send voice, fax, instant messages, e-mail messages, etc., from a single user interface that can be adapted to any ambient or device. A testbed of e-learning applications will be designed and implemented on top of the developed

framework, defining a general architecture for the clients and the basic services which will act as bricks to build more complex services. A service development environment supporting development of P4P applications based on the PABIOS integrated infrastructure will be also delivered.

Finally, an integration and validation stage will ensure that components and platforms coming out of the design and implementation stage are compliant with the models defined in the initial stage.

During the project, use of Open Source components will be encouraged to ensure the fast uptake and maintenance of PABIOS results. Furthermore, once PABIOS components and PABIOS platform reach a certain level of maturity, a dedicated portal to support and maintain external PABIOS users and developers will be provided by using the PABIOS platform itself.

## About CELTIC

Celtic is a European research and development programme, established as Eureka cluster, to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions. Launched in November 2003, Celtic (Cooperation for a sustained European Leadership in Telecommunications) was founded and has been supported by major European telecommunication players, both vendors and operators. Celtic fills the gap between public R&D programmes not specifically focused on telecoms and short-term R&D efforts by the telecoms industry

**Timeframe:** 8 years, from 2004 to 2011

**Total budget:** in the range of 1 billion euro, shared between governments and private participants

**Participants:** companies from the telecommunications industry (small, medium and large), universities, research institutes, and local authorities from all 35 Eureka countries may participate in Celtic projects.

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## Main results

PABIOS intends to devise an enhanced e-learning platform based on an innovative loose coupled components platform. The main results will be:

- New business models and scenarios for P4P applications.

- A technical architecture enabling loose integration of systems and user-personalized services, as well as a set of tools integrating the methodologies and techniques for P4P applications development, test and deployment.

- Models for any operation (such as accounting, mobility, and AAA) that may be shared among P4P applications.

- A framework providing services and components to be used by PABIOS platform. The framework will include both application reusable components (fault tolerance, configuration, etc.) and back-end platform components (service orchestrator, directory server, etc.).

- A set of extensible application clients that can access the capabilities of the services running on top of the PABIOS infrastructure.

- Security policy for P4P applications.

In a short timeframe, the PABIOS platform could become the reference for the integration of new services and applications based on P2P and also the basis for the development of a new host of P4P e-learning and workgroup applications.

## Impact

The project will result in the modeling of service production methods and the development of a set of tools that will ease the development of collaborative, customizable information services. Currently, there is no defined standard for the quick deployment of a service for several clients or environments. PABIOS will provide the functionality that covers this area. New business models can appear taking advantage of the advances in this area, such as services composition on user demand.

P4P architecture defined in PABIOS will reduce the cost of systems because of the use of grid computing, embracing other P2P inherent advantages like availability, scalability and simplicity. Due to the Open Source nature of the selected technologies, it will also have a reduced cost and the support of the Open Source community.