

USING WIRELESS TECHNOLOGIES FOR CONTEXT
SENSITIVE EDUCATION AND TRAINING

CONTSENS

EXPLOITATION PLAN

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I. EXECUTIVE SUMMARY

This is the Exploitation Plan for the Lifelong Learning Programme project *Using wireless technologies for context sensitive education and training*.

The partnership for this project is:

- Ericsson Education Ireland
- Giunti Labs s.r.l., Italy
- London Metropolitan University, United Kingdom
- University of Plovdiv, Bulgaria
- Corvinno Technology Transfer Centre, Budapest, Hungary
- The European Consortium for the Learning Organisation, Wavre, Belgium.

These partners fall naturally into three groupings. The first grouping is the industrial partners: Ericsson and Giunti Labs. The second grouping is the educational partners: London Metropolitan University and the University of Plovdiv. The third grouping is the educational/business partners: Corvinno Technology Transfer Centre and The European Consortium for the Learning Organisation.

Each of these three groupings has its own goals and objectives for the exploitation of the products of the project.

II. EXPLOITATION STRATEGY BACKGROUND

1. Introduction

The project proposal for the Lifelong Learning Programme project *Using wireless technologies for context sensitive education and training (CONTSENS)* as approved by the European Commission states clearly the nature of the Exploitation Plan for the project. The text reads:

‘All the products of the project will be exploited with real students in real situations. Scientifically designed questionnaires will be distributed to all the participants. Data will be collected and analysed and formal reports written on the success or otherwise of the development of context sensitive and location based training.’

2. Results from the users’ needs analysis

The CONTSENS project involves different software solutions that are targeted to different scenarios and users, described in the General System Design available on the CONTSENS website. This section describes the results from the users’ needs analysis for all the CONTSENS software solutions.

3. CONTSENS objectives and achievements

The profile of the typical mobile device is changing rapidly. It is estimated that by 2010, the number of people using mobile broadband connections will have increased to over half a billion. This access is being made on all type of mobile devices; mobile phones, media players, handheld games consoles, ultra-portable PCs, etc. Already we are seeing a great deal of convergence in the marketplace; while it is common to see people carrying both a mobile phone and a media player, such as an iPod, these devices are merging, with mobile phones offering gigabytes of storage for audio and video. Devices running Windows Mobile and Symbian have many of the features of laptops or desktop computers and are now being used to access the mobile internet at broadband speeds.

Handheld devices can be used in public and social settings where larger devices would be intrusive and seem out of place. Using a small device like an audio tour guide on an iPod or mobile phone web browser to supplement a visit to the art gallery is an obvious use of mobile technology; typing on a laptop computer in that same environment is not as acceptable or practical.

Current handheld devices are capable of the processing power, information storage, and data connection speeds exceeding that older personal computers - but are not reliant on power sockets or CAT-5 cables. They are capable of all of

the same kinds of learning tasks: peer-to-peer sharing, ad-hoc networking, wireless internet access, discussion boards, chat, voice calling, video messaging, and resource creation and editing. They can support free and open source software, all the way from their Operating System, through to their applications, and even support and integrate with Web 2.0 tools.

Mobile learning is being incorporated into mainstream education and training, especially in Europe, South Africa and Japan. In Europe this is mainly through projects funded by the European Commission, four of which were led either by Ericsson or Giunti Labs, both of whom are partners in this project and in which most of the other partners in this project were participants.

The concrete aims and objectives of the project are to:

- contribute to the continued development of mobile learning by harnessing the latest technological developments in the field (GPS, RFID, Mobile Positioning) for learning.
- address the imbalance identified between the availability of mobile devices and the lack of education and training provision on the sophisticated communications devices which every student in every EU country carries and uses constantly – except in education.
- support the development of innovative ICT-based content, services, pedagogies and practice for Lifelong Learning.

It is now possible to envisage an audience for mobile learning content which is media rich, collaborative and always available to the user. Using established technologies such as GPS and SCORM, and developing for newer technologies such as RFID and Mobile Positioning, training content can be developed for both context sensitive and location based delivery.

The field of mobile technologies is developing with amazing rapidity. It is essential for all involved in education that mobile learning is not left behind.

The achievements of the CONTSENS project are:

- The successful creation and design of the project's General System Design which describes a framework for deploying
 - Context sensitive education and training

Context sensitive education and training refers to training material which is directly relevant to the training situation that the learners find themselves in.

and

- Location based education and training

- Location based education and training refers to training material which is directly relevant to the location that the learners find themselves in. The successful localisation of the General System Design to the systems of the partners
- The development of 4 sets of mobile learning courseware with context sensitive and location sensitive characteristics:

Task based training using location and context sensitive technologies

Art Gallery and Museum Education

Use of context sensitive technologies in mobile learning

Use of context sensitive technologies in language learning.

4. Results of the exploitation

The mobile learning courseware with context sensitive and location sensitive characteristics has resulted in the successful teaching and exploitation of this courseware to groupings of 20 – 50 Vocational Education and Training (VET) students in Ireland, the United Kingdom, Hungary and Bulgaria.

5. Identification of business, markets and trends

From the previous analysis it is possible to identify the business domain, markets and trends.

Preliminary market and domain studies are performed that help to define exploitation objectives. Individual results are identified by the different partners, and the exploitation potential is analysed by means of standard tools such as Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. The outcome of this process is a measure of the SWOT of the results with respect to successful exploitation.

SWOT ANALYSIS



Strengths:

- Adoption of the mobile internet is speeding up and consumption of content is growing.
- The experience of using the internet to go online is getting more agreeable all the time due to better technology, including handset improvements.
- Fixed price 'all-you-can-eat' deals for mobile content are helping to drive content consumption.

Weaknesses:

- In terms of handsets, the market is actually getting more fragmented which means that it is getting harder rather than easier to work towards a user experience which is satisfactory across the handsets market.

Opportunities

- There is a great opportunity for learning providers to sell and provide to students and professionals the appropriate training on the spot, in dependency on their needs and on the context.

Threats

- It is difficult to provide a consistent experience across different browsers and the ever expanding variety of handsets and personal devices on the market.

The types of businesses where the CONTSENS applications would have great opportunities are the providers of mobile learning, the providers of e-learning and other providers of learning for the higher and further education markets.

These markets are, as yet, little developed and it cannot yet be claimed that mobile learning is a valued revenue stream for telecommunications industry providers.

A further business and market opening is to be found in the field of wireless devices who would wish to exploit the solution coming out from the interaction of proprietary Giunti and Ericsson solutions to build up the localisation and positioning services in conjunction with IMS technology.

III. EXPLOITATION STRATEGY OBJECTIVES

1. A comprehensive website

An important plank in the exploitation plan is a comprehensive website listing the working papers and technical solutions of mobile learning with location sensitive and location sensitive characteristics, including a portal listing of conferences, technical sites and literature on mobile learning with location sensitive and location sensitive characteristics.

This website has been developed and will be maintained Ericsson

This website will contain all the products of the project, unpassworded, for consultation by scholars and practitioners in mobile learning from around the world.

The website will be exploited as a meeting place for those interested in the context sensitive and location sensitive characteristics of mobile learning.

2. The SIG (Special Interest Group)

The project will be exploited by the creation and maintenance of a Special Interest Group (SIG) through which experts from throughout the world will be informed about the project and be able to contribute their experiences and discuss their problems with this sector of education and training.

The SIG will be set up and maintained by the European Consortium for the Learning Organisation (ECLO).

ECLO will choose from its 1500 named listing of contacts about 500 members to constitute the SIG.

There will be at least 4 communications to the SIG during the life of the project, two in Year 1 and two in Year 2.

3. Articles on mobile learning technologies

The project will be exploited by the production of articles on mobile learning with location sensitive and location sensitive characteristics, which will be published in influential journals like ELEED and EURODL and on the WWW, setting the groundwork for the development of this new sector of education ad training provision.

These formal publications on mobile learning with location sensitive and location sensitive characteristics will be complemented by presentations of papers at educational and business conferences.

During the course of the project each partner will make at least one exploitation of the project in an international journal or at an international conference.

4. Business development framework

The project will be exploited by a business development framework drawn up by the industrial partners, the academic partners and by the business/educational partners.

This refers to any proprietary development and does not include any end-solution leveraging other partners' components or IPR protected objects. Any such use would entail a further commercial agreement among partners.

Comment [OL1]: Any exploitation activity will be carried out taking in account possible IPRs. If u don't think it 's clear feel free to modify it.

i. Industrial partners

Ericsson will exploit the project by the incorporation of mobile learning with location sensitive and location sensitive characteristics into its training provision for both staff and customers. Ericsson trains customers and staff on how to use, deploy and support Ericsson telecommunication networks and software solutions.

Giunti Labs plans to invest in the CONTSENS customisation of the products used in the project.

In particular, Giunti Labs is interested in the exploitation of the outcomes of the Local System Design, in which Giunti Labs entails the localisation of the General System Design to its own training system.

Giunti Labs intends to exploit the localization and positioning services (WIFI, GPS, RFID) to open its own LMS to other mobile applications.

Giunti Labs offers an integrated blending of new pedagogical, technical and organizational solutions to manage change in mobile content production and

management processes and infrastructures into large learning and knowledge organizations and societies.

Giunti Labs addresses large Corporations, Academic Consortia and Governmental Initiatives.

ii. Academic partners

London Metropolitan University will exploit the CONTSENS project in at least three different ways. Firstly, by extending the knowledge and technical know-how to their involvement in the FP 7 MATRUE project (which is examining social learning in knowledge networks in the work place).

Secondly, by rolling out the Urban Planning system to local London councils and interested partners (e.g. local schools and colleges).

Thirdly, by bidding for additional funds in order to scale up the approach to context-sensitive learning and training. The R&D opportunities in a world where 3.3 billion people (half the population of the world) own mobile phones are immense.

The University of Plovdiv will exploit the project by developing several location-dependant courses about historical sight-seeing in Plovdiv to be used by tourists and guests of Plovdiv.

The University of Plovdiv will exploit the project by using the developed system as an addition to DIPSEIL2. The students will have an alternative for their Internet-based courses to perform the tasks using their own mobile devices. DIPSEIL is deployed in Austria, Ireland, Spain, France as well as Bulgaria.

iii Business/Educational partners

Corvinno Technology Transfer Centre will exploit the project by using it in its Business Studies programmes at Bachelors and Masters levels for supporting student learning and providing additional course content.

Corvinno has initiated a Living Lab which is an open innovation platform which provides research, development, innovation and market validation services in real-life environments. A Living Lab is willing to share knowledge, research services and products through a common platform. Participants of a Living Lab come from all segments of public and private sectors: private companies (profit and non-profit), public and private research organisations, governmental institutions, public bodies and also individuals can benefit from this cooperation.

A Living Lab provides win-win strategies for all stakeholders by co-selling and promoting their developments and services on the global market. An active involvement in a living lab has several benefits for the participants:

- Capability to improve the effectiveness of customer's research, development and innovation process
- Comprehensive Living Lab's service portfolio incorporating user-driven innovation methods and tools
- Measures to engage people as real-life users in the innovation processes
- Possibility to utilize real-life testing, validating and usage contexts
- User-centricity service processes
- Capability to serve full product lifecycle product development
- Means to support research and development within the entire value chain
- Providing real life test beds for innovative products
- IPR issue management
- Business-citizens-government partnership in practice
- Business process development support for incorporated products
- Connection possibilities to regional/national/European innovation systems and networks
- Visibility of stakeholder's profile through a dedicated web site or other dissemination means.

Products and outputs of this project fit seamlessly and can be incorporated into the Flexible Learning and Working Living Lab, organised and run by Corvinno Technology Transfer Center. This possibility, due to the above mentioned reasons, provides excellent exploitation possibilities for this partnership. Project outputs – in case of stakeholder interests – can be further tested and developed into market ready products.

E.C.L.O. (European Consortium for the Learning Organisation) will exploit the CONTSENS project by

- Directly communicating all the project deliverables to their membership base including any post-project books, articles, papers etc.
- Continue to maintain and update the CONTSENS web pages on the E.C.L.O. website with all post-project resources and developments
- Continue to offer the project partners the opportunity to present at E.C.L.O. conferences and other organised events
- E.C.L.O. will continue to offer its dissemination services and function to any future R&D projects

Note that on a "Google" worldwide search of "learning organisation" + "mobile learning", E.C.L.O. appears first.

5. CONTSENS licensing strategy and Open Source

Overview of applicable licensing schemes

The license strategy for the CONTSSENS products. Some of the CONTSSENS products may be Open Source.

However, the Ericsson and Giunti Labs technologies leveraged to build up the General System Design product are license-based.

Any product deriving from the merging of the two technology systems will be subjected to an eventual ad hoc licensing schema to be agreed among relevant parties.

Open Source License Models

The Open Source Definition is used by the Open Source Initiative to determine whether or not a software license can be considered open source. The definition was based on the Debian Free Software Guidelines, written and adapted primarily by Bruce Perens.

Under the Open Source Definition, licenses must meet ten conditions in order to be considered open source licenses. Below is a copy of the definition, with unauthorized explanatory additions. There is a link to the original unmodified text below. It was taken under fair use.

1. Free Redistribution: the software can be freely given away or sold. (This was intended to expand sharing and use of the software on a legal basis.)
2. Source Code: the source code must either be included or freely obtainable. (Without source code, making changes or modifications can be impossible.)
3. Derived Works: redistribution of modifications must be allowed. (To allow legal sharing and to permit new features or repairs.)
4. Integrity of The Author's Source Code: licenses may require that modifications are redistributed only as patches.
5. No Discrimination Against Persons or Groups: no one can be locked out.
6. No Discrimination Against Fields of Endeavor: commercial users cannot be excluded.
7. Distribution of License: The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.
8. License Must Not Be Specific to a Product: the program cannot be licensed only as part of a larger distribution.
9. License Must Not Restrict Other Software: the license cannot insist that any other software it is distributed with must also be open source.
10. License Must Be Technology-Neutral: no click-wrap licenses or other medium-specific ways of accepting the license must be required.

GPL

The GNU GPL is the best known open source license and widely used. However, it is a license optimised for U.S. law. As has been pointed out by Stefano Mininel during the PSC Meeting, it may be more appropriate to use a license designed for European law. There are two main such licenses, CeCill (originally a French license, but a valid English translation exists), and EUPL (approved by the European Commission on 9 January 2007 and currently available in 22 languages)

There is also the possibility to alter the GNU GPL (with some restrictions, see below). However, the GPL FAQ reads that one is strongly discouraged to do so:

Can I modify the GPL and make a modified license?

You can use the GPL terms (possibly modified) in another license provided that you call your license by another name and do not include the GPL preamble, and provided you modify the instructions-for-use at the end enough to make it clearly different in wording and not mention GNU (though the actual procedure you describe may be similar).

If you want to use our preamble in a modified license, please write to <licensing@gnu.org> for permission. For this purpose we would want to check the actual license requirements to see if we approve of them.

Although we will not raise legal objections to your making a modified license in this way, we hope you will think twice and not do it. Such a modified license is almost certainly incompatible with the GNU GPL, and that incompatibility blocks useful combinations of modules. The mere proliferation of different free software licenses is a burden in and of itself.

The GPL FAQ also underlines the impossibility to restrict the license to non-commercial use:

I'd like to license my code under the GPL, but I'd also like to make it clear that it can't be used for military and/or commercial uses. Can I do this?

No, because those two goals contradict each other. The GNU GPL is designed specifically to prevent the addition of further restrictions. GPLv3 allows a very limited set of them, in section 7, but any other added restriction can be removed by the user.

CeCILL

The CeCILL FREE SOFTWARE LICENSE AGREEMENT was released by three French public research organisations in 2004. It is a Free Software license conforming to French law. According to the preamble, the license may not be altered:

CeCILL Preamble:

This Agreement may be freely reproduced and published, provided it is not altered, and that no provisions are either added or removed herefrom.

CeCILL is compatible with the GNU GPL.

EUPL

The European Union Public Licence is a new license developed in a project funded by the EC. The European Commission has approved the EUPL on 9 January 2007. The licence has then been made available in English, French and German. By a second Decision of 9 January 2008, the European Commission has validated the EUPL in all the other official languages, in respect of the principle of linguistic diversity of the European Union, as recognised by Article 22 of the Charter of Fundamental Rights. At the same time, due account has been taken of the European Union Law as well as of the specificity and diversity of Member States Law.

“Compatible Licences” according to article 5 EUPL are:

- General Public License (GPL) v. 2
- Open Software License (OSL) v. 2.1, v. 3.0
- Common Public License v. 1.0
- Eclipse Public License v. 1.0
- Cecill v. 2.0

As this license is favoured by the EC it shall be applied whenever possible in the XX project for Open Source software modules, taking into account compatibility issues. It should especially be noticed, that the EUPL 1.0 is not compatible with the current version of GPL (V. 3).

The EUPL is available at <http://ec.europa.eu/idabc/en/document/6523>

Dual license models

Dual-licensing is the practice of distributing identical software under two different sets of terms and conditions. This may mean two different licenses, or two different sets of licenses. Often, dual licensing is used when on commercial and one non-commercial version of a piece of software is distributed. Here, basically two options exist.

Option 1) Make the non-commercial license not open source, but e.g. certain kind of shared source. An example is the Microsoft Shared Source Common Language Infrastructure License. The licensing permits non-commercial

modification and distribution of the source code, as long as all distributions include the original license, or one encompassing the original terms. However, Microsoft Shared Source Common Language Infrastructure is neither free software according to the Free Software Foundation, nor OSI-approved open source.

Option 2) Make the „non-commercial“ version true open source with a strong copyleft (e.g. under the GNU General Public License Version 3), meaning that everyone distributing a modified version needs again to adhere to this license and make the source code available for free. As stated above, the license cannot be limited to non-commercial use. However, if a company or (individuals) substantially modify the software and wants to sell it, they can buy a commercial license from us which doesn't require the modified version to be released under the original open source license (e.g. GPL Version 3). This is also the model that MySQL AB follows. According to Valimäki (2003) this company makes more than 50% of its revenues from selling licenses (the rest accounting for branding and services), also the software is also available for free under the GPL.

IV. EXPLOITATION OF CONSENSUS COURSEWARE

1. The courseware

During the course of the project each of the partners will develop four mobile learning courses with context sensitive and location sensitive characteristics.

It is anticipated that these courses will be some of the first courses in the world with these characteristics.

2. The target audiences

The partners involved in developing courseware (Ericsson, London Met, Corvinno & Plovdiv) will choose a grouping of at least 20 learners/users to study the courses. It is the decision of the partner whether these people will use their own mobile devices for studying the courses or whether the institution will provide them.

3. Study of the courses

The courses will be studied by learners selected by the partners and, if possible, incorporated into the institutions' mainline courses

4. Evaluation

A scientifically designed questionnaire has been produced by the London Metropolitan University for use in the project. If necessary, this will be translated

and then distributed to all learners on the completion of the course for filling in to evaluate the courses.

When completed the questionnaires will be collected and the data analysed.

When the data is analysed an evaluation report on the student feedback on the courses will be written. The target length of the reports is at least 10 pages.

V. EXPLOITATION STRATEGY RESULTS

1. Global exploitation actions

Despite the fact that the products are the results of a European Commission project and all the partners are Europe-based, the exploitation actions of the partners will be global and not confined to Europe.

2. Partner exploitation actions.

It is necessary to identify the exploitable items and if there is any plan to commercialise them.

For instance we have to decide how to exploit the solution coming out from the interaction of proprietary Giunti and Ericsson solutions to build up the localisation and positioning services in conjunction with IMS technology. At the end of the project, this may be decided and documented in a commercialisation plan.