Collaborative Open Environment for Project-Centred Learning

European Commission Sixth Framework Project (IST-027073)

Deliverable External Dissemination and Exploitation

This deliverable describes the activities performed and planned for the external dissemination and exploitation of the COOPER project. Part of the internal report concerning internal dissemination and training is also reported.

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1 Abstract

This plan aims at illustrating the strategies adopted in order to ensure that the designed and developed platform can be externally disseminated and exploited, both during the completion of the project, and after its conclusion, through the spread of the final outcomes and the achieved results, in academic and industrial environments.

Preliminary phases of this plan have included several internal activities, as basis for the final external dissemination and exploitation plan. These preliminary activities have concerned:

- The creation of a public web site in order to give relevance to the project since its beginning, and to spread the innovation of the approach.
- The internal dissemination and the internal training addressed to the consortium partners, in order to make all COOPER members aware and updated about the latest achieved results during the development of the project. In particular, internal workshops and meeting have been organized involving both all members together, and a few persons, in little groups, according to the various specific theme of discussion; then, three levels actions for internal training have been carried out for spreading the internal knowledge and know-how: the first was performed at the beginning of the project from the WebModel partner to all the others partners in order to provide the bases for the installation of the WebRatio technology; the second was about the intra-partners training for the implementation of the different solutions on the cooper platform; the third concerned trainings within the single partners' institutions and addressed to their internal members. All these actions were supported by the creation and the updating of the internal web site, and by the involvement of all cooper members through the cooper mailing list.

In particular, the internal activities of dissemination and exploitation have allowed affording the heterogeneous members of the COOPER consortium with the necessary common ground that has proved to be fundamental for coordinating the development of the different project work-packages in parallel. Further these activities have acted as functional basis for the planning and the organization of the external ones, since also these aim at reaching a wide and heterogeneous audience.

At the moment, this plan is based on the external dissemination activities and supports; on the exploitation of the achieved results and those that will be completed at the end of the project. Therefore, the activities defined in this plan include the participation in and the organization of national and international workshops and conferences; the maintenance and the use of the COOPER public web site and the enclosed documents, with the aim of ensuring optimal understanding of the condition of adoption and of use of the platform, not only for the members and customers of the institutions involved, but also and especially for a wider community of potential interested users. Only through the awareness of the advantages provided by the COOPER platform, it will be possible to exploit the results achieved during the development of the project.
Further, primitive guideline for adapting COOPER to different scenarios will be briefly illustrated, also considering the COOPER added value for a geographical distributed teamwork approach.

These last considerations will be better integrated and explained in the second and last deliverable of the current work-package that will be provided by the 23M (end of October 2007).

Finally, terms of use and commercial support of the COOPER solution will constitute the base on which it will be possible to build new external collaborations.

2 Introduction

The present document is the external exploitation and dissemination plan of the COOPER project. This plan lays out the foundations for the external exploitation and dissemination activities already executed or planned for the COOPER project.

While the dissemination is an activity performed with the participation of all project partners from the beginning of the project, the exploitation regards the description and the definition of those activities that exploit the results of the project during its last period as well as after its conclusion. Within this perspective, the purpose is to provide internal members of the project and potential external collaborators with a shared vision of these activities.

This document, through a formal description, will illustrate both the dissemination vision and the exploitation one, emphasizing on the sustainability of the project outcomes.

The results and impact of the project efforts rest not only in the effectiveness of dissemination activities, but also in the ability of the exploitation. In fact, while the first is essential in order to attain the objective of making the project understandable and visible, the latter aims at assuring the conditions within it is possible to take advantage of it. Reaching out to bigger portions of the target groups are keys to project success. Therefore the COOPER project has specifically designed exploitation and dissemination work package (WP6).

COOPER WP6 consists of the definition and the descriptions of the activities devoted to promote the outcomes of the project, with the purpose of boosting the adoption and supporting the use in the different academic and industrial environments, as already has been experimented within the COOPER consortium. In fact the heterogeneous COOPER members with their different background have been the first testing ground, not only for the development and the integration of the various project technical functionalities, but also and especially for the real COOPER platform deployment.

More specifically, the main objectives of this work package are:

- Defining the term dissemination within the project context, stressing out the significant importance of this activity particularly to reach the COOPER project aims.
- Identifying the most effective activities and materials for the dissemination that are best suited for our goals, target groups and deliverables. Participative and organizational initiatives have been already performed or are planned, exploiting scientific publications or informative materials.
- Defining the term exploitation within the project context, stressing out the significant importance of this activity particularly to take full advantage of the COOPER project.
- Identifying the project purposes, the internal and external exploitable results, both from the whole project context, and from the single work-packages in order to make clear to internal members and potential interested parties and collaborators what can be exploited and in which way.
- Defining the potential external stakeholders of the project in terms of target communities. This definition gives a clear vision of the audience for dissemination and exploitation activities, and it relies on the previous identification of the internal COOPER members.

- Defining the terms of use and the most effective commercial support to boost the adoption and the use of the COOPER platform, through the development of an exploitation model ensuring sustainability of project results.
- Capitalizing on existing collaborations and liaisons with established networks of higher education institutions as well as wider industrial learning environment.

3 Dissemination

Dissemination is one of the necessary conditions to assure sustainability of a project and of related outputs. In fact, dissemination ensures both the internal awareness and understanding about the achieved results, and the visibility needed to reach large audiences not directly involved in the project itself. Dissemination makes the project understandable, visible, and enables the consolidation of networks of “real” and potential users, allowing a possible official recognition on the topic, as well as a continuous users’ feedback.

When these conditions are in place, then dissemination can really be a prologue for project and outputs sustainability.

In this section, the most important dissemination activities, already performed or planned, are described. In addition, the creation and the maintenance of the COOPER public web site (see COOPER Public web site at paragraph 3.2.1) acts as principal base of collection and spread of the project public documentations, providing also the interested persons with the possibility to address questions concerning the product functionalities and their deployment to the specific competent COOPER partner (see Exploitation section at paragraph 3.2.1.1). Finally, other material, such as the COOPER leaflet and poster, complete the supports to the dissemination (see Poster & Leaflet at paragraph 3.2.2).

3.1 Dissemination Activities

The promotion activities performed by the consortium members concern the participation in international conferences, workshops, and events related to the e-learning and communication technologies domains, and concerning different and intertwining areas of application, such as teamwork processes modelling, web applications, knowledge sharing services, definition and assessments of virtual environments, evaluation methods, recommendations systems, and so on.

The following list of the partners’ scientific publications presents the achieved results and the ongoing work developed within the COOPER project.

Further, COOPER members individually and collectively have taken active part in the organization of international workshops and events with particular emphasis on the project-centred applications for the management of teamwork with members geographically dispersed.

Finally, the presentations of technical demonstration of tools and prototypes developed within COOPER aim at interesting potential users and prospects, creating direct contacts for the consortium and the communities of reference.

3.1.1 Events in which COOPER members have participated or plan to attend

National (i.e. internal to the single consortium countries):

- Learntec, the industrial e-learning exhibition, held in Germany in February 2007
- Online-Conference "Learning Networks in Practice" - http://homer.ou.nl/lnip07/?q=node/5, organized by OUNL-Netherlands, 7-11 May 2007
- Conference ROCHI 2006, Romania, 21-22 Sept 2006

International

- the PRO-LC (Professional Learning Cluster) http://www.professional-learning-cluster.org/
- IST Results Service, interview published on IST web site at the following url: http://istresults.cordis.europa.eu/.../COOPER/
- 6th International Conference on Web Engineering (ICWE '06), July 2006, Palo Alto, CA, USA
- 15th International CIKM Conference on Information and Knowledge Management, August 2006
- 1st EC-TEL'06 (First European Conference on Technology Enhanced Learning), 1-4 October 2006, in Crete, Greece
- 8th ACM Intl. Workshop on Web Information and Data Management, November 10, 2006, USA
- 4th International Conference on Multi-media and Information and Communication Technologies in Education (m-ICTE2006), November 22, 2006, Seville, Spain
- 1st European Workshop on Latent Semantic Analysis in Technology Enhanced Learning, Netherlands, 29-30 March 2007
- CSCL (computer supported cooperative learning), Rutgers, The State University of New Jersey, USA, July 16-21, 2007
- 2nd European Conference on Technology Enhanced Learning, next September 19-20, 2007, in Crete, Greece

3.1.2 Publications

Publications in scientific conferences and journals are important communication channels for disseminating the research outcomes of the project. The members of the consortium have strong commitment in publishing their work in relation to the COOPER project's e-learning issues and research topics in high quality conferences and major journals. Thus, during the project run-time, the research partners have authored or co-authored a set of journal and conference articles on subjects that directly result or benefit from the research work performed within COOPER (the list of publications is enclosed below). Here below is reported a list of the main consortium and partners' publications of scientific articles.

Consortium papers

Aldo Bongio, Jan van Bruggen, Stefano Ceri, Valentin Cristea, Peter Dolog, Andreas Hoffmann, Maristella Matera, Marzia Mura, Antonio Taddeo, Xuan Zhou, Larissa Zoni. "COOPER: Towards A Collaborative Open Environment of Project-centred Learning" in EC-TEL'06 conference proceedings, Crete, Greece - October 1-4, 2006

Spoelstra, Howard (OUNL), Matera, Maristella (PM),Rusman, Ellen (OUNL),Van Bruggen, Jan (OUNL),Koper, Rob (OUNL), Bridging the gap between instructional design and double loop learning, Proceedings of IV Inter-national Conference on Multi-media and Information and Communication Technologies in Education (m-ICTE2006), November 22, 2006, Seville, Spain

Partners' papers

Alessandro Bozzon, Tereza Iofciu, Wolfgang Nejdl, and Sascha Tonnies "Integrating databases, search engines and Web applications: a model-driven approach", the 7th International Conference on Web Engineering (ICWE'07), 16-20 July 2007 in Como, Italy

Paul - Alexandru Chirita (L3S) and Claudiu S. Firan (L3S) and Wolfgang Nejdl (L3S) Pushing Task Relevant Web Links down to the Desktop, the 8th ACM Intl. Workshop on Web Information and Data Management, November 10, 2006, USA

M. Brambilla, S. Ceri, P. Fraternali, I. Manolescu, Process Modeling in Web Applications on ACM-TOSEM, October 2006

J. Diederich and T. Iofciu, Finding Communities of Practice from User Profiles Based on Folksonomies

and

V. Posea, D. Mihaila, S. Trausan-Matu, V. Cristea, and A. Gartner (position paper), Evaluation of Virtual Learning Environments Using Logs and Social Networks
Proceedings of the 1st International Workshop on Building Technology Enhanced Learning solutions for Communities of Practice (TEL-CoPs'06), October 1-4, 2006

Vlad Posea, Alexandru Gartner, Stefan Trausan-Matu (All UPB), Recommendation Systems for Improving the Interface of an e-Learning Platform (in Romanian), 21-22 Sept 2006, Conference Proceedings ROCHI 2006

P.A. Chirita, C. Firan and W. Nejdl, Summarizing Local Context to Personalize Global Web Search, Proceedings of the 15th International CIKM Conference on Information and Knowledge Management, August 2006

M. Brambilla, Generation of WebML Web Application Models from Business Process Specifications (Demo), In Proceedings of the 6th International Conference on Web Engineering (ICWE '06), July 2006, Palo Alto, CA, USA

S. Ceri (PM), M. Matera (PM), F. Rizzo, V. Demalde, Designing Data-Intensive Web Applications for Accessibility Using Web Marts, Apr 2006; Communication of ACM

Stefan Trausan-Matu UPB), Valentin Cristea (UPB), Dan Mahaila, Adrian Popescu, Personalized Sequencing In A Knowledge-Based E-Learning Environment, Apr 2006; Information Systems & Operation Management Journal

Stefan Trausan-Matu, Gerry Stahl, Johann Sarmiento, Polyphonic Support for Collaborative Learning, 2006, in Lecture Notes in Computer Science 4154, pp. 132-139, Springer-Verlag ISSN 0302 9743,

Ellen Rusman, From pattern to practice: evaluation of a design pattern fostering trust in Virtual teams, CSCL 2007, Rutgers, The State University of New Jersey, USA, July 16-21, 2007

Ellen Rusman, Theoretical Framework for the Design and Development of a Personal Identity Profile fostering Interpersonal Trust in Virtual Project teams, paper accepted for the 6th International Workshop on Social Intelligence Design, Trento, Italy, July 2-4, 2007 - http://hmi.ewi.utwente.nl/sid07/

3.1.3 Events organized

International Public Workshop organized by the COOPER consortium:

The submitted proposal for the 1st International Workshop on Collaborative Open Environments for Project-Centered Learning has been accepted within the 2nd European Conference on Technology Enhanced Learning, that will be held next September 17-20, 2007, in Crete, Greece.

For the workshop proposal text, please refer to Appendix at paragraph 7.

Events organized by some COOPER members:

- The PRO-LC (the Professional Learning Cluster) www.professional-learning-cluster.org
- 1st EC-TEL'06 (First European Conference on Technology Enhanced Learning), 1-4 October 2006, in Crete, Greece, organized by the PRO-LC
- 1st European Workshop on Latent Semantic Analysis in Technology Enhanced Learning, Netherlands, 29-30 March 2007, organized at OUNL, and supported by Cooper, ICamp and Prolearn. The workshop focuses on educational applications of LSA of which some are employed within Cooper (for example: recommender systems and question answering). More information at: http://homer.ou.nl/lsa-workshop07/index.php?option=com_frontpage&Itemid=1
- 2nd European Conference on Technology Enhanced Learning, September 19-20, 2007, in Crete, Greece, organized by the PRO-LC - http://www.ectel07.org/

3.1.4 Public Demonstrations

COOPER partners participated in a number of exhibitions with the purpose of demonstrating some of the prototype tools being currently implemented and integrated into the COOPER platform. Further, this activity encourages the consortium's partners to establish direct links through on-site presentations and demo sessions and to set up co-operations and partnerships. The applicability of the COOPER platform for handling projects with members geographically dispersed has been demonstrated on practical case studies, and presented to industrial as well as academic profiles. The demonstration gives a real-life experience of the efficiency of the new paradigm developed within this project.

In particular, public demonstrations concerning the cooper solutions are related to:

- the Technical tool (e.g. about process design, pedagogical scenarios, knowledge sharing), and in the specific case:

L3S gave a demonstration about the first COOPER prototype and how creating static and dynamic processes at Learntec, the industrial e-learning exhibition, held in Germany in February 2007. Further the cooper platform is used by L3S as base tool for a course held in Germany.

OUNL illustrated initiatives about interpersonal trust in Virtual teams and trust management, developed within the Cooper project, during the Online-Conference "Learning Networks in Practice" (see: http://homer.ou.nl/lnip07/?q=node/5), organized by OUNL-Netherland, on 7-11 May, 2007. Further, pilot experiences about the Personal Identity Profile and trust management

initiatives within Cooper will also be demonstrated at the CSCL 2007 workshop on 16–21 July (see: http://cosy.ted.unipi.gr/CSCL_DPatterns_workshop.htm).

Finally, PoliMi gave a demo about the design of static and dynamic processes during the COOPER annual review, held in Hanover on 30 November 2006, and now it is available at http://131.175.141.118/demoCooperProcesses (please, use the following accounts: “Project Manager”, “Team Member 1”, “Team Member 2”; no password is requested).

- Architecture (process modeling concepts; communication services)

A technical demo about the COOPER architecture was presented during the COOPER annual review, and now an improved and updated version to install and to learn to use the WebRatio technology is available at ftp://cooper:webratio@131.175.141.118 (please, during the installation process, when asked, use the following credentials: Name=Cooper Project ; Serial=wrmlt-00131-35070-66607)

A Conference-Demo showing the Abbeynet audio-video conference service wrapped by a WebRatio unit is available at http://131.175.141.118/ConferenceDemo and it is described within the above mentioned technical demo.

- Case studies applications

At the moment two user’s demos with online help manual and instructions have been provided. The user is guided to access two main different scenarios according to the chosen project role (as supervisor or as student). The demos are available at the following address: http://www.alari.ch/cooper-demo (to enter as *supervisor*: user name: *supervisor;* password: *c2oDe-sup*; as *student*: user name: *student;* password: *c2oDe-stu*) and http://131.175.141.118/ASPcooper (accounts: “tutor”, “student”; no password is requested).

These demos were presented during the annual review, held in Hanover on 30 November 2006, and offer an integrated applied route of the technical acquired knowledge together with the specific contributions of the various partners into the first COOPER platform (for more details, please refer to the deliverables 5.3 - 4.2 - 3.2).

3.1.5 References

Here follow the main list of the COOPER references. Public references will be provided also on cooper web site, exploitation section (see Exploitation section at 3.2.1.1) in order to spread the basic knowledge of the cooper project. These references aim at supporting the competitive cooper results for the external exploitation, and are addressed towards all interested audience. The references are divided with respect to the peculiar characteristics of each work-package.

For WP1

S. Ceri, P. Fraternali, A. Bongio, M. Brambilla, S. Comai, M. Matera. *Designing Data-Intensive Web Applications*. Morgan-Kaufmann, December 2002.

I. Manolescu, M. Brambilla, S. Ceri, S. Comai, P. Fraternali, *Model-driven design and deployment of service-enabled Web applications*. ACM Trans. on Internet Technology, 5(3), July 2005, pp. 439-479.

S. Ceri, F. Daniel, M. Matera, F. Facca. *Model-driven Development of Context-Aware Web Applications*. ACM Trans. on Internet Technology, 7(1), February 2007, Article No. 2.

M. Brambilla, S. Ceri, P. Fraternali, I. Manolescu. *Process Modeling in Web Applications*. ACM Trans. on Software Engineering and Methodologies 15(4), October 2006, pp. 360-409.

S. Ceri, M. Matera, F. Rizzo, V. Demaldè. *Designing Data-Intensive Web Applications for Content Accessibility using Web Marts.* Communicasion of ACM, 50(4), April 2007, pp. 55 - 61.

S. Ceri, M. Matera, A. Raffo, H. Spoelstra. *Flexible Processes in Project-Centred Learning*. Proc. Of EC-TEL'07, Crete, Greece, September 2007 (in print).

For WP2

Spoelstra, Howard (OUNL), Matera, Maristella (PM),Rusman, Ellen (OUNL),Van Bruggen, Jan (OUNL),Koper, Rob (OUNL), Bridging the gap between instructional design and double loop learning, Proceedings of IV Inter-national Conference on Multi-media and Information and Communication Technologies in Education (m-ICTE2006), November 22, 2006, Seville, Spain

For WP3

Paul - Alexandru Chirita (L3S) and Claudiu S. Firan (L3S) and Wolfgang Nejdl (L3S). *Pushing Task Relevant Web Links down to the Desktop.* the 8th ACM Intl. Workshop on Web Information and Data Management, November 10, 2006, USA

P.A. Chirita, C. Firan and W. Nejdl. *Summarizing Local Context to Personalize Global Web Search*. Proceedings of the 15th International CIKM Conference on Information and Knowledge Management, August 2006

J. Diederich and T. Iofciu. *Finding Communities of Practice from User Profiles Based on Folksonomies.* Proceedings of the 1st International Workshop on Building Technology Enhanced Learning solutions for Communities of Practice (TEL-CoPs'06), October 1-4, 2006

Ellen Rusman, "From pattern to practice: evaluation of a design pattern fostering trust in Virtual teams" CSCL 2007, Rutgers, The State University of New Jersey, USA, July 16-21, 2007

Ellen Rusman, "Theoretical Framework for the Design and Development of a Personal Identity Profile fostering Interpersonal Trust in Virtual Project teams" paper accepted for Social Intelligence Design 2007/

Wild, Fridolin, Kalz, Marco, Van Bruggen, Jan, Koper, Rob (Eds). 2007. Proceedings of the First European Workshop on Latent Semantic Analysis in Technology Enhanced Learning, Heerlen, March 28-29, 2007. Available: http://hdl.handle.net/1820/933.

For WP4

COOPER Consortium. Teamwork Processes Assessment and Methodology. COOPER Technical Report D1.1. May 2006.

AbbeyPhone SDK Documentation, http://www.abbeyphone.com/VOW/sdk/documentation.php

For WP5

Evaluation:

Cooper consortium. “Evaluation definition: Method and metrics” Cooper Technical Report D5.2

V. Posea, D. Mihaila, S.Trausan-Matu, V. Cristea, A. Gartner. *Evaluation of Virtual Learning Environments Using Logs and Social Networks.* Proceedings of the 1st International Workshop on Building Technology Enhanced Learning solutions for Communities of Practice (TEL-CoPs'06), October 1-4, 2006

V. Cristea, S. Trausan-Matu, V. Posea, A. Gartner, *Towards an Evaluation Methodology for Collaborative Learning.* Proceedings of the 16th International Conference on Computer Science and Automatic Control, Bucharest 23-25 May 2007

User Cases:

[C06a] Cooper consortium. “Scenario and Requirements Analysis”. Cooper Tech. Report. D5.1: March 2006.

[C06b] Cooper consortium. “Teamwork Process Assessment and Methodology”. Cooper Tech. Report. D1.1, May 2006.

[C06c] Cooper consortium. “Processes Design Document v1”. Cooper Tech. Report. D1.2, October 2006.

3.2 Dissemination Supports

The following material is used as a valid and effective support for the external dissemination activity.

3.2.1 COOPER Public web site

The COOPER web presence presents all the activities of the consortium and offers detailed public information about this project.

The building of the cooper web site was developed step by step, reflects the acquired internal knowledge and explains the public results achieved within the cooper project.

The web site, reachable at www.cooper-project.org, is an essential resource for dissemination. It is used as the most updated and the most detailed source of information. The web site is also promoted in all other external dissemination material.

Here there is a description of the activities performed until now, and of the work in progress.

The first version of the cooper web site was ready after two months since the beginning of the project; while the current version presents the new lay-out uploaded during the tenth month. The previous version is still accessible from the site map link on the home page of the new web site.

The cooper web site consists of both a public access and a private one (strictly dedicated to the cooper members).

The **basic site map** of the web site is as follow:

- **Home Page**. This is the start point for the web site navigation with links (both on left side and on the top menu) to several areas and pages, as described here below. In addition, the home page displays a welcome note, the project key data, the News (on the right side) with also the RSS button, and the logo of the main European sponsors (EU Commission, the 6FP, and the IST institution), with the relative links to the specific web sites. Finally, on the right upper portion of the web site, there is also the access to the internal (private) web site – intranet BSCW -, and little figures representing Contact, Search, Site map, and Print. On Contact page there are the information about project coordinators and web master. A search mask appears also on the bottom of the page.
- **About COOPER**. This part presents the principal purpose of the project, and the pages of the Consortium Members with their relative logos and links, of the Management Board, and of the COOPER staff with the list of all cooper participants sorted by institution or by name.
- **News** is the page about the coming events
- **Events** is the page about the past events, including also the events in which Cooper members took part in.
- **Public documents**. This page provides brief descriptions of the six cooper work-packages and links to the public deliverables of the project.
- **EU similar activities**. This page offers links to other European similar projects
- **Publications**. Here there is the list of all scientific publications about the project issued both by the Cooper consortium and by its single members.

Work in progress regards the maintenance of the cooper web site (updating or modification of the public information), and the creation of a specific exploitation section for the final release and commercial support of the COOPER platform with its integrated services and functionalities. A brief description of this section is here below presented.

3.2.1.1 Exploitation section on web site

An exploitation section will be added on the cooper web site with a demonstration link of the COOPER platform functionalities. In particular the exploitation section will consist of:

- Description of the cooper purpose
- Description of the achieved results with the list of the main references according to the different WPs outcomes presented
- A link to the already present published documents and scientific articles
- The creation of an “Interest Group” with the reference contacts for each of the several parts developed within the cooper project, in order to directly address specific questions to the competent COOPER persons

Further, every partner will create a link to the COOPER web site from the own institutional web site, specifying the competencies about the single cooper services for which s/he can provide support or consultancy (for more details, please refer to Exploitation paragraph 4).

3.2.1.2 COOPER Private web site

Finally, a little report concerns the creation and the use of an internal COOPER private virtual space, accessible only by COOPER members via a user id/password pair from the official public COOPER web site. This private virtual space allows collecting all the documents and deliverables produced by the cooper members within the cooper project.

The private site acts as a sort of repository of the produced deliverables. It is divided into nine sections: six are dedicated to the respective work packages, one is for the administrative management of the project and its state-of-the-art (WP7), and another one is devoted to the internal scheduled workshops and to the collection of the relative documentations, and the last one is for the demos of the COOPER platform prototypes.

As the project goes ahead, the drafts of the several deliverables are uploaded, each on the own work-package section, and all members are invited to read them and to provide suggestions, corrections and modifications, until the last version is ready to send out according to its deadlines. Usually all cooper partners are involved in the revision of a deliverable, and contribute with their comments to the final version. So, on each section it is possible to follow the deliverable history,

Finally, all public results from the final deliverables are subject to direct dissemination, since they are the most concrete achievements of the project and are used to show the COOPER progress.

3.2.2 Poster & Leaflet

Poster and leaflet are important support material for external dissemination, enhancing the COOPER visibility in conferences, workshops and fairs. Their design is in line with the project's identity and the printed versions give general information about the project's vision.

Also the electronic versions are distributed via the web portal and e-mails. Please, see the materials in Appendix.

3.2.3 Tutorials and Training

Others dissemination initiatives concern the availability of tutorials, as follow.

- **Tutorials for external training about the basic provided technologies.**

Currently, Web Models has provided a trial version of WebRatio4.COOPER, including customized units developed within the COOPER project, a tutorial with a quick start guide, and a demo application to install and learn to use the Web-Ratio technology, available at ftp://cooper:webratio@131.175.141.118
Further Abbeynet has provided an online Conference-Demo showing the audio-video conference service wrapped by a Web-Ratio unit and enclosed with the WebRatio4.COOPER version.

- **Tutorials for building dynamic processes**

A tutorial is provided describing the definition and the execution of the dynamic processes. Please, refer to the material in Appendix.

- **Specific internal training**

To facilitate the internal collaboration and the building of real project know-how, COOPER members spread their previous acquired knowledge providing each other with the own specific experience. The importance of the internal training consists of making all the cooper persons not only aware about the outputs achieved but also able to co-share and use the innovations produced within the COOPER project. In particular three important steps at different levels have characterized the internal training, and namely:

1. at the beginning, the technical basic training provided by WebModel to all the other COOPER partners, and especially to the two academic user cases ALaRI and ASP concerned the WebRatio installation

2. the intra-partners training provided among the various partners with the goal of presenting and integrating in a unique platform the different solutions. For instance, ALaRI provided feedbacks to the technical partners for the implementation of their components, and trained the industrial case LT Design Sw for integrating such components in its platform. Then, UPB provided help for implementing the questionnaire module at Alari and offered support for using the questionnaire module for the ASP students.

3. the specific training internal to each partners' institution and addressed towards their internal members. For instance, ALaRI made use of an internal course about the WebRatio technology, as well as an online how-to manual for internal use.

Finally, the creation of the **internal COOPER wiki**, accessible only by cooper members through log in and password at http://wiki-cooper.l3s.uni-hannover.de:8080/JSPWiki2/, has improved the collaboration among the cooper members who here can co-share the intermediate information about their works. In particular on this wiki a general tutorial is ongoing in order to provide the final guidelines about the installation of the single parts of the cooper platform that consists of:

- a simple and base version of the cooper platform (webratio quick start) and the extension of the webratio workflows
- the installation of VOIP services, such as the functionalities provided by the conference unit (audio-video conference, chat, and vote system).
- the creation and the management of atomic activities, in order to execute and modify dynamic processes
- the installation of knowledge sharing tools, and the specifications of some scenarios in order to design suitable recommendation systems
- some processes concerning the assessment of pedagogical scenarios
- evaluation methodologies about the effective use of such a platform

- fundamental requirements based on the experience of use coming from academic and industrial perspectives that should prove the validity of adoption of these technologies

4 Exploitation

The purpose of this document is to describe how COOPER partners will exploit the results of the project during the last period of the project as well as after the end of this funded project.

To define and to initiate the exploitation of the project results two main approaches are pursued by the consortium.

1. The first approach concerns an internal exploitation of what is possible to co-share among the cooper partners, after having tested the technologies, to maintain the use and for implementing further research & development methods.
2. The second approach consists of a direct external exploitation of the project results, through commercial channels. In particular, the exploitation consists of promoting, advertising and commercializing the prototypes and tools developed within COOPER, offering technical support and consultancy services for specific and peculiar functionalities.

4.1 COOPER Purposes

This section aims at illustrating the purposes and the objectives of the COOPER project, with its key features and services

Virtual team-works, as for their peculiar definition, exploit alternative opportunities to meet together on virtual workplaces rather than in physical meeting, grouping members with different professional competences and capable to resolve complex project by means of synchronous and asynchronous communicative tools. Consequently, the COOPER platform has been mainly designed with the principal aim of enhancing the cooperation in projects where members are geographically dispersed, and have heterogeneous background and competencies.

The COOPER project aims at facilitating the effective use of its e-learning technology, supporting individual and collective competency sharing. Within this perspective, particular attention has been focused on the realization of interfaces customized in accordance with the principles of usability, to facilitate “the effectiveness, efficiency and satisfaction with which specified users can achieve specified goals in particular environments” (ISO 9241-11).

Further, within the COOPER project innovative collaborative learning scenarios have been defined, providing a model-driven, easy-to-use, and easy-to-reconfigure infrastructure in order to adapt the COOPER approach to specific environments.

Particularly, the COOPER technology can be deployed to easily manage the building of virtual teams, breaking distance barriers, and proposing innovative learning scenarios, centred on the “learning by doing” approach.

4.2 Exploitable Results

Following the purposes above mentioned, the services developed within this project cover exactly the needs noticed in design and development of cooper platform. At the end of the project, the achieved results and the competitive outputs will be internally and externally exploited, taking into consideration both the overall results and the single outputs from each work-package and the three case studies.

4.2.1 Overall competitive solutions

At the end of this funded project (December 2007) the cooper final platform will be released, basing on the WebRatio.4 technology and integrating several functionalities stemming from the cooperative effort of the entire COOPER consortium.

In particular the following description aims at emphasizing the interconnections of the provided solutions and the already achieved results into the first COOPER prototype. The second and final version of the COOPER platform with the final competitive solutions will be released, as agreed, later on.

The solutions here presented concern:

- The Technology (as described in D1.1 and 1.2 by PoliMi, in D2.1 by OUNL, in D3.1 and 3.2 by L3S)
- The Architecture (as described in D4.1 and 4.2 by WebModel and Abbeynet)
- The User cases study and the evaluation methods (as described in D5.1 and 5.3 by ALaRI, ASP, LT Design Software as user cases, and in D5.2 by UPB as evaluator)

About the technology

Key components of the Cooper platform are dedicated to design team management processes and a knowledge sharing environment with recommendation services for enabling project-centred learning and with the aim of allowing COOPER users to conveniently obtain wanted knowledge or learning resources. In particular, the management of static and dynamic processes was supported by the development of a Business Process Management Notation (BPMN_see : www.bpmn.org, 2004) editor and avails of data schema design, also for the management of the knowledge repository services, extending the WebML language for modeling the platform in order to access knowledge repository. Further, the current platform design complies with the guide of the pedagogical scenarios, and supports cooperation aspects in virtual teams, such as process flexibility and double loop learning, and it can be easily extended to support other issues, such as competency analysis and assessment. Moreover the pedagogical scenarios, investigating and extensively studying the concept of Virtual Company, help to identify possible new atomic actions (contributing to define the dynamic processes) and possible "certified templates".

About the architecture

The background technology consists of the architecture and development of the web based COOPER infrastructure to support applications for distant cooperation on complex projects in a distributed training system. Moreover, process modelling concept of the enhanced WebML and communication services have been integrated into WebRatio, such as the VoIP technology infrastructure for the synchronous communication in virtual teamwork processes. Finally, it was released the COOPER Prototype v1, and the second version is almost ready, also integrating the tools developed by the COOPER members. A further effort is addressed towards the

potential integration of technologies enabling joint editing of office documents, as suggested by the reviewers.

About the user cases and overall evaluation

The user cases gave a relevant contribute to elicit the requirements and to define the scenario of the reference framework for the COOPER prototype oriented to the project-centred learning, both in academic and in industrial environment, thanks to their experience of use, practical references, and precious feedback. Further, a well elaborated evaluation methodology was developed, performing it at the conceptual, technical, and impact levels.

4.2.2 Single Outputs

From the efforts of the single COOPER partners, it is possible to highlight specific contributions to the overall platform, and in particular:

From PoliMi: the investigation and application of the dynamic processes design for enhancing the scheduling and organization of team cooperation procedures.
PoliMI have enriched the state of the art in model driven design of web applications, by focusing on integrating business, workplace and learning processes and process patterns.
In particular, the PoliMi contribution focuses on the process design methodologies (as described in D1.1), and on teamwork processes design (as described in D1.2 and D1.3), especially based on the data design (through web marts to identify the main data assets and special repeating patterns that facilitate the definition and organization of information), the static processes (through design-time specification of well-structured static processes, that can refer to known activity flows, constraints, actors, resources), and the composition and modification of dynamic processes (enabling the building of “dynamically defined” workflows) from a given set of predefined “Atomic Activities”, and given workflow constructors. Deep studies have regarded the identification and customization of the so defined “Atomic Activities”, and consequently the execution of dynamic processes for the creation or the modification of some resources, such as documents, news, forum, in the Knowledge Repository.

from OUNL the definition and the model of suitable pedagogical scenarios for competency building and competency assessment in virtual teams (as described in D2.1).
OUNL has defined the functional, educational and social infrastructures – including trust fostering mechanisms - and the main characteristics of a virtual company, providing also content, flow and data for several forms of assessment (including 360° degrees, self and peer assessment). This approach has brought to the project a constant attention to the user profile. Further OUNL contributes with latent semantic analysis of the students and team portfolios, and collaborates to explore social structures for recommendation of previous knowledge sources.

from L3S the investigation and the application of innovative personalization approaches especially suitable for collaborative learning, including social recommendation techniques and services, and cooperative query answering, performing research on supporting semantically rich collaborative recommendations.
In particular, L3S has first provided a survey about the recommendation system (as described in D3.1). Then knowledge sharing services have been designed and developed for the release of the first COOPER prototype, such as a semantically reach knowledge repository, search services, and recommendation services (as described in D3.2). All these will be further improved and integrated in the second release of the COOPER prototype.

from WebModels and Abbeynet derive the technologies solutions for the platform architecture and for promoting communication facilities.

In the specific, WebModels focuses on innovative software tools and methodologies for optimizing the development process of Web based applications. It has developed *WebRatio®,* a WebML-based CASE solution for designing data-centric Web applications with rapid prototyping, configuration, reconfiguration and troubleshooting, focusing on the resulting applications rather than the technology used to create them.
Abbeynet develops new technologies to supply convergence of integrated communication on data networks. Abbeynet aims to offer solutions that give an answer to the new communication needs raised with the diffusion of the internet, implementing the functionalities to supply web telephony services (ToIP/VoIP) in SoftSwitch platforms.

Within the COOPER project, WebModel and Abbeynet have integrated their activity designing process modeling concepts and VoI (Voice over Internet) units into the WebRatio platform (as defined in D4.1); and also integrating the tools developed by the other consortium members in the first COOPER Prototype, and soon in its second version (as in D4.2, and as soon in D4.3).
In particular, WebModels has developed and provided the architecture design of the cooper application exploiting the WebRatio solution (a visual design tool) that supports the software development lifecycle from requirement analysis to deployment, and it is based on WebML (Web Modeling Language), for specifying the structure of the Web application. Further it has extended the WebML notation to integrate business process modelling concepts, and the workplace modelling, to support the design-time specification of structured (static) processes, as well as all educational and personalization aspects into the joint model driven platform and infrastructure.
About the Abbeynet contribution, it has provided the X-VOW (eXtended Voice Over Web) Conference System, a software development kit that allows a simple integration of multimedia communication services into a web application. This software has been integrated with the WebRatio tool, and it allows the web application designer to implement different user experience and various look and feels for every application. The conference service consists of an audio-video conference directly from the web page (the Push and Speak tool), that also integrated a chat (private and public) and a voting system, that requires the list of participants as input, and manages the conference through an Ajax-enabled interface, thus not causing the continuous refresh of the Web page.

Finally from UBP and the 3 case studies ALaRI, ASP, and LT Design Sw, as follow:

The WebRatio solution has been deployed by 3 case studies (belonging to the academic and industrial environments), giving the opportunity to evaluate both technical solutions and social impacts that contribute to improve the implementation of the final COOPER platform.

UBP represents the formal evaluator of the COOPER project, contributing especially on developing multiple detailed evaluation methods, e.g. log-analysis, on-line questionnaires, expert opinions, (as described in D5.2), within project-centred learning scenarios of use, for a qualitative and quantitative evaluation of the COOPER approach. The evaluation questionnaires and their management have been developed by means of the Web Ratio tool, and integrated into the COOPER data model platform.

These evaluation methods are applied to the three case studies, considering a relevant number of participants, covering different roles and with different background. This approach allows not only knowing the users' satisfaction level but also and especially localizing the functionalities whereas it is required to improve them, and thus increasing the real use of the platform.

From the teamwork requirements and from the scenarios' analysis of the 3 case studies **ALaRI, ASP, and LT Design Sw** (D5.1 and 5.3), the following relevant outcomes stand out:

from ALaRI it stood out the possibility to integrate heterogeneous services into one platform with multi-directional navigation patterns and an advanced data filtering that limits the navigational access by user type. These aspects have been the base to define and

to design the teamwork process about the development of master projects within an academic institution, managing user profiles geographically dispersed, and co-sharing, re-using and implementing public electronic resources stored in a knowledge repository, and private documents collected in dedicated virtual folders. In particular, the advanced data filtering is an enhanced access rights management group-based. Such a software component can be released as optional features in the COOPER platform.
Further, ALaRI has offered its availability to test intermediate products during the development of the cooper project, in order to check the functionalities. The outputs from the testing phases are used to improve the final cooper platform.

from ASP: the teamwork on multidisciplinary projects and through courses has been supported by the Cooper platform by means of asynchronous and synchronous long-distance interactions on projects, coordinating collaboration processes.

from LT Design Sw: the industrial perspective has stressed the relevance of managing a knowledge not fixed, but floating, exploiting infrastructure and tools for the internal continuing education and workplace learning as well as for customer training. In particular, it has emphasized the necessity of an intuitive and efficient project centred learning, able to support the complex workflow processes (from the R&D, through the Solution Marketing, until the final customer) reflecting the company organizational structure.

4.2.3 Guideline for cooper adoption

Guidelines for cooper adoption are available as into the document provided by WebModels: the WebRatio 4.COOPER. It includes the management of the teamwork processes and it anticipates the efforts to multiply the societal and economic benefits to provide easiness of use and improvement of work condition through the final COOPER platform for an enlarged work environment (see the next final D6.2 – M23).
Currently, on the COOPER internal wiki, guidelines are ongoing to describe the procedures to create and install the principal functionalities of the final cooper platform, such as the installation of knowledge sharing tools, of conference units, and so on (available at http://wiki-cooper.l3s.uni-hannover.de:8080/JSPWiki2/wiki/COOPERV2)

5 Target & Application Communities

5.1 Internal Target

In order to ensure a good diffusion of the COOPER results externally, first it is fundamental to generate good conditions for the internal scientific dialogue between the COOPER members coming from different disciplines. In fact the COOPER consortium is quite heterogeneous and it has represented the first testing ground for experimenting with the deployment of the COOPER platform.

The consortium can be roughly partitioned in 3 groups:

- pedagogical experts (OUNL, UPB, and L3S)
- technical experts (Politecnico di Milano, WebRatio, and Abbeynet)
- use cases managers (ASP, ALaRI and LT Design Sw)

The several parties represent academic institution (Politecnico di Milano, OUNL, UPB, ASP, and ALaRI), research centres (L3S), spin off (WebRatio), and industrial organizations (LT Design Sw, and Abbeynet). They do not share the same background and languages, but through the internal exploitation of previous knowledge and of the iteratively acquired results it was possible to reduce the distances and effectively enable communication exchanges. Further, such a community guarantees a full spread of its outputs, with the possibility of reaching a wider audience whose members belong to various domains of activities.

5.2 External Target

The COOPER platform is developed in conjunction with several targeted application communities from the outset, leading to immediate benefit for a number of application users. The case studies have provided extensive testing of the applied services, and will ensure ultimate usability and customization, that will then be propagated to other external communities.

Key application communities for the use of the new COOPER technologies include:

- potential customers of the technology providers (academic or industrial)

- academic and research institutions (public and private) involved in the management of complex project with team members geographically dispersed, as the cases presented by ALaRI and ASP institutions, where students, international lecturers and project advisors or tutors can cooperate through the use of the platform in asynchronous or synchronous communication ways

- enterprise and industrial entities (national and multinational) or investors, such as banks or financial institutions, that can exploit the cooper application for several needs, such as:
    - the customer area
    - the internal problem area, e.g. providing tool designers as well as training experts with guidelines to tackle problems already faced and solved
    - the Human Resources area about employees' career assessment and evaluation

In particular, different user profiles should be distinguished, and namely:

- the principal user of the platform (such as a lecturer, a student, an industrial user) who needs a specific customization of the interface in order to work by his/her own and to interact with other users
- the technical experts who manage the provided technologies. In this case two distinctive figures should be distinguished, and namely:
    - the technician who well knows the sw platform
    - the technician who well knows the network protocols

6 Commercial Agreement

Commercial Support & TERMS OF USE with Intellectual Property Rights (IPR)

The Consortium has agreed on opening the Cooper platform to experimentation by other academic and no-profit institutions by means of **free academic licences** to be delivered on request, so as to favour the spreading of use of the platform within such parties. In addition, the industrial partners (Web Models and Abbeynet) agree to give access to their technology under an **academic licence agreement**, with no cost but also no maintenance or help-desk service obligation, so as to make the Cooper platform extensible and customizable.

Every partner of the consortium has agreed to be a COOPER Competence Center in the respective geographic area and to help academic and no-profit institutions with the installation and use of the platform through bilateral agreements.

For what concerns the exploitation of results to industry, including SMEs, it is agreed that interested industrial partners should negotiate **ad-hoc licences** with the two companies (WM and Abbeynet) for what concerns, respectively, the use of background technology as well as WebRatio extensions and the synchronous services developed as foreground of the project, these reflecting the commercial policies of the two companies at the time of the negotiation – possibly with a single licensing schema covering both extensions and negotiated through one of the companies after case-by-case bilateral agreement between them.

For what concerns instead the other foreground software developed within the consortium, all partners of the consortium agree that such foreground software can be **granted for use to industry in exchange for consulting services**, that can be negotiated between industry and any of the partners of the consortium, in the format that is appropriate for the specific partner (e.g., research contracts for academic partners, consultancy fees for industrial partners). All partners further recognize that Politecnico has right to foreground on flexible processes (WP1) and L3S has rights to foreground in personalized recommending systems (WP3) and therefore, should the software component to be used by industry include these two components, Politecnico and L3S should be at least informed of the negotiation and either participate to the negotiation or agree to cease their rights. Moreover, all partners recognize that Polimi, LT Design Sw, and ALaRI have right to foreground on the software which they developed as peculiar customizations of the Cooper platform for building their applications, in the case such customization is also granted in addition to the COOPER platform; therefore, should the software component used by industry include one such customization, the respective foreground owner should be at least informed of the negotiation and either participate to the negotiation or agree to cease their rights.

Finally, the exploitation of foreground developed by each partners for any use not related to the Cooper project is otherwise regulated by the Official Journal of the European Communities. The background IPR of individual partners will be safeguarded but made freely available for the project purposes. Foreground IPR are solely owned by the partner who has developed it within the project, in so far core developers can exploit their work outside the project.

7 Appendix

1. Workshop Proposal
2. Poster & Leaflet material
3. Guide Document for WebRatio.4 COOPER installation
4. Tutorial of Dynamic Process definition and execution