Project Number **027023**

APOSDLE: Advanced Process Oriented Self-Directed Learning Environment

Integrated Project

IST – Technology enhanced Learning

Publishable Executive Summary

March 2006 - February 2007

Due date	**2007-04-14**
Actual submission date	**2007-04-24**
Start date of project	2006-03-01
Duration	48
Revision	**Final**

Organisation name of lead contractor for this deliverable

JRS – JOANNEUM RESEARCH

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)

Dissemination Level

☒	PU	Public
☐	PP	Restricted to other programme participants (including the Commission Services)
☐	RE	Restricted to a group specified by the consortium (including the Commission Services)
☐	CO	Confidential, only for members of the consortium (including the Commission Services)

Disclaimer

Imprint

Full project title:	Advanced Process-Oriented Self-Directed Learning Environment
Title of work package:	WP X: Project Management
Document title:	Publishable Executive Summary
Document Identifier:	APOSDLE-Publishable-Executive-Summary
Work package leader:	JRS
List of authors:	Stefanie Lindstaedt, Tobias Ley (KC)
	Harald Mayer (JRS)
Administrative Co-ordinator:	Harald Mayer
Scientific Co-ordinator:	Stefanie Lindstaedt

Copyright notice

Document History

Version	Date	Reason of change
1	2007-04-23	Copied from First Periodic Activity Report

Publishable Executive Summary

Advanced Process-Oriented Self-Directed Learning Environment

Project Objectives

In a world of rapid change and continuous technological innovation the economy of the European Union relies on the ability of their knowledge workers to learn efficiently and especially to apply new knowledge effectively within their work processes.

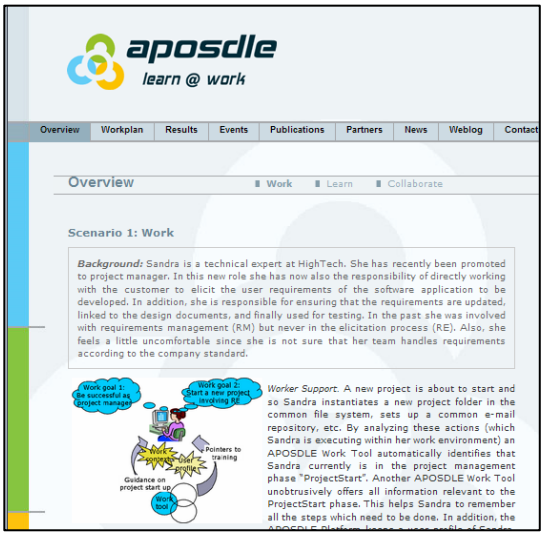
The goal of the APOSDLE project is to enhance knowledge worker productivity by supporting informal learning activities in the context of knowledge workers' everyday work processes and within their work environments.

The key distinction of the APOSDLE approach as compared to more traditional (e)Learning approaches is that APOSDLE will provide integrated ICT support for the three roles a knowledge worker fills at the professional workplace: the role of Learner, the role of Expert, and the role of Worker. Chiefly, this support will be provided within the work environment, and not in a separate learning environment. It exploits synergies between learning and knowledge management by reusing content not originally intended for learning. It will utilize contextualized communication for knowledge transfer, and ease the burden on experts for these tasks. Finally, it will be based on knowledge sources available within an organization – specifically business space, (e)Learning systems, and knowledge management – and not require a switch to a new system.

The outcome of APOSDLE will be in-depth understanding of workplace learning (within the APOSDLE scope). Based on this understanding a methodology and reference architecture for the support of workplace learning within computational environments will be created. In order to ensure the general applicability of this outcome we will use an application-driven approach to cover the needs of three different organizations: a network of SMEs, a public organization, and a large corporation. Their needs and constraints provide APOSDLE with the necessary guidance to develop informal learning processes, contextualized collaboration methods, and work support.

The prime deliverables of the APOSDLE project will be the domain-specific APOSDLE Environments embedded into the application partner organizations. Using these environments, we aim to demonstrate and evaluate the benefits of seamless integration of learning and working in the professional workplace.

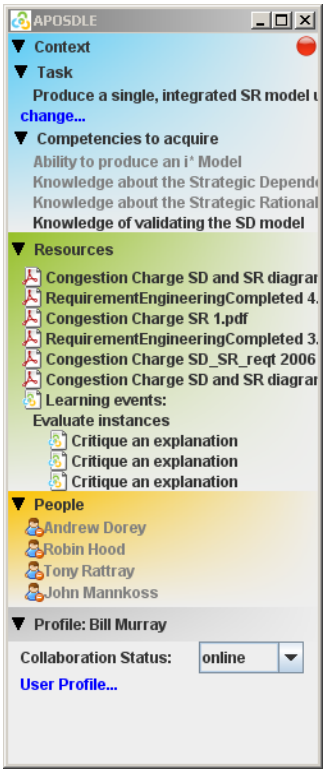
Work Performed and Results Achieved



APOSDLE Vision and Scenarios

An important prerequisite for a truly integrated project is a strong vision which guides the initial developments. Accordingly, the **APOSDLE vision of work-integrated learning for knowledge work** was created early in the project in order to establish a tight integration of the many innovative ideas within the consortium.

The vision was documented as a set of interrelated scenarios which guide a knowledge worker through working, learning and collaboration activities at her workplace. The vision establishes the scope and boundaries of the project and was published in Lindstaedt & Mayer (2006) and on the project website[1].



Work

Determining the user context, such as the task the user is currently working on, provides the basis for the APOSDLE system to offer learning or collaboration assistance. In the first year, a first prototype of a desktop monitoring demon was implemented which logs user data as a basis for automatically detecting the user context.

A second objective in this area was to create a tool for **delivering supportive knowledge artefacts** based on the user context. The knowledge delivery tool was implemented as a sidebar which runs on the desktop. It displays knowledge artefacts, learning events and persons according to the context the user is in. The task is manually selected, competencies required are automatically determined from the underlying models and the user profile.

Learn

In order to arrive at an understanding of how knowledge workers learn at the workplace, a large scale **workplace learning study** was conducted. It was carried out in two phases, involving extensive data collection at the application partners' workplaces, and an online survey with over 100 participants.

The results generally support the assumptions underlying the APOSDLE approach, namely that workplace learning is frequent, that it is strongly driven by tasks people perform and, while being reasonably successful, bottlenecks are being reported. The study provides clues for further enhancements of the system, especially when people turn to documented sources and when seeking interpersonal help.

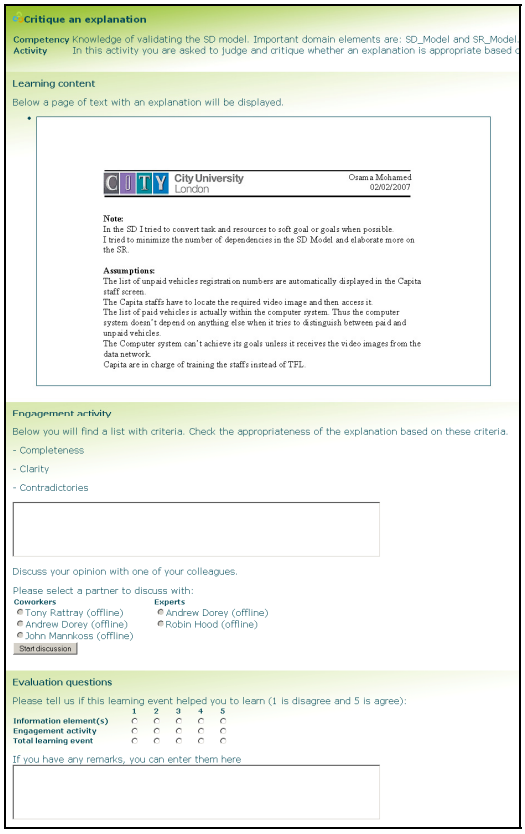
Furthermore, a first version of a **learning tool** was integrated into the first APOSDLE prototype. The learning tool follows a template based approach in that it utilizes generic instructional structures and

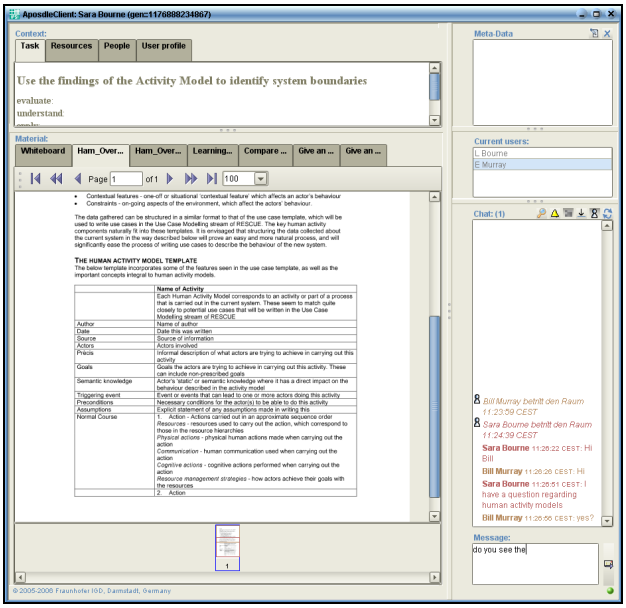
[1] http://www.aposdle.org/overview

attempts to fill them with available material. Based on self-directed learning research and a classification of learning goals and material, the tool creates ad hoc learning events tailored to the current learning need of the user.

Collaborate

In terms of **contextualized collaboration**, the Concert Chat tool was integrated into the first APOSDLE prototype. The tool now makes use of context information from the platform in that the contacted person is made aware of the context of the user. The chat protocol together with the context information can be stored in the platform for later reuse after completion of the collaboration.





Technical Infrastructure

As an early prototype was required to show the general feasibility of the approach, the objective was to provide an **overall design of the system architecture** for the first prototype, as well as the integration of all software artefacts. Accordingly, the design of the first APOSDLE Prototype has been developed collaboratively as a very large-scale service-oriented software system. The integration is based on the Spring framework which establishes a loosely coupling of all existing services.

In order to enable context sensitive retrieval of knowledge artefacts, an **associative network** and a **user profile service** were designed and developed as a first prototype of the integrated knowledge structure. The Associative Network retrieves resources from underlying data structures and the User Profile Service maintains and analyses user-related information. The Associative Network utilizes information from the semantic structures and from a content based similarity service.

Also as part of the first platform prototype, the **homogeneous access** component was developed and integrated which provides access to the universe of the knowledge artefacts (textual documents for the first prototype) stored on different systems. It provides interfaces to different services (User Profile

Service and Classification Service) and all the APOSDLE tools. For the first prototype, the main focus was on the access to the file system as an underlying data source.

Modelling and Semantic Structures

Several of APOSDLE services are based on three **semantic models** (learning domain, work tasks and user competencies). For the first prototype, three models for the RESCUE domain, a requirements engineering methodology, were provided. First versions of the modelling methods were documented based on a meta model which integrates the three separate models. Two modelling tools, a task modelling tool based on the YAWL workflow language, and a domain modelling tool which utilizes content based similarity of documents to support the human modeller, were realized for the first prototype.

The **structure repository**, then, is used to store and manage all structures used in the first prototype. It is realised as a knowledge base composed of a set of ontologies connected with semantic mappings.

Application driven Approach and Evaluation

APOSDLE **requirements** for the first prototype were specified in a large scale and interactive process involving all project participants. These activities included several bilateral meetings, a creativity workshop and pair writing of use cases. This resulted in the documentation of rich artefacts supporting the requirements process, including scenarios, design ideas, mock-ups, use cases and requirements. Realizing that APOSDLE is a social as much as a technical solution, a model of **APOSDLE as a socio-technical system** was created using the i* approach.

Planning of the **formative evaluation** was also completed in this reporting period. The work resulted in a complete formative evaluation framework to be used to structure evaluation goals, techniques and APOSDLE artefacts throughout the project.

Horizontal Activities

The horizontal activities encompass dissemination, standardization, exploitation, training, demonstration and management activities. Within the first reporting period, the consortium delivered plans for all these activities. Notable results are several **dissemination activities** in the first year: The project was successful in creating visibility in the technology enhanced learning and knowledge management communities, especially by broad participation in the EC-TEL conference, co-authoring of the proceedings volume, and organization of the I-Know conference. Links to other EU projects and activities were established by founding of the Professional Learning Cluster (Pro-LC), and organization of and participation in several Prolearn events. A project website is maintained at http://www.aposdle.org.

APOSDLE Consortium

The APOSDLE consortium consists of 12 organisations from 7 different European countries, ensuring that the demands of the ambitious vision of the project can be met both in terms of complementary competences and in terms of broad access to different technologies and domains of application.

- JOANNEUM RESEARCH, Austria
- Know-Center, Austria
- SAP, Germany
- Technical University Graz, Austria
- Fraunhofer Gesellschaft, Germany

- University of Twente, Netherlands
- City University London, United Kingdom
- Fondazione Bruno Kessler, Italy
- EADS France, France
- isn - Innovation Service Network, Slovenia
- ComNetMedia, Germany
- Chamber of Industry and Commerce – Darmstadt, Germany

APOSDLE Contact Persons

Stefanie Lindstaedt

Scientific Co-ordinator
Know-Center GmbH
Inffeldgasse 21a/II
8010 Graz, Austria
email: slind@know-center.at
phone: +43 316 873 9260

Harald Mayer

Administrative Co-ordinator
JOANNEUM RESEARCH
Steyrergasse 17
8010 Graz, Austria
email: harald.mayer@joanneum.at
phone: +43 316 876 1136

Please visit www.aposdle.org.