



# OPEN Project

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## **1. Introduction: aim and shape of the plan**

The purpose of the document is to give an overview of the activities the OPEN project consortium will undertake in the first one and a half project years (February 2008 – November 2009) in the areas of dissemination, exploitation and collaboration. The plan provides details on activities we have identified to be important, and allocates intentions among the partners.

The report and plan will be updated annually in order to track the progress in the activities, to provide updates of the plan and to give more detailed plans approaching the end of the OPEN project. The document is structured into three parts, i.e. sections on the dissemination plan, the collaboration plan and the exploitation plan.

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## 2. Dissemination plan

This section presents the planned dissemination activities of all partners starting with June 2008. It reflects dissemination in the scientific community and beyond.

### 2.1 Scientific Community

OPEN can potentially contribute to several scientific communities. The main means of contribution will be the publication of conference and journal contributions, the organisation of events and workshops as well as direct contacts to particular research groups. We start with the dissemination goals of the academic partners, Clausthal University, Aalborg University and CNR-ISTI.

As the main research of Clausthal University is on application logic reconfiguration using context information, various conferences and workshops can be considered. Among others, the following conferences and workshops allude to the topic of application logic reconfiguration and the topic of considering context information during reconfiguration. They already submitted papers successfully to some of these conferences and are convinced that we will address interested researchers. The following table comprises the main directions, i.e. candidate events of scientific publication to go for the group from Clausthal University.

<b>Event</b>	<b>Location and date of event</b>
Pervasive - International Conference on Pervasive Computing	Nara, Japan May 2009
ACM Symposium on Applied Computing – Track on Dependable and Adaptive Distributed Systems	Honolulu, Hawaii, USA March 2009
International Conference on Software Engineering (ICSE)	Vancouver, Canada May 2009
International Conference on Self-adaptive and Self-organizing Systems (SASO)	Venice, Italy October 2008 Location to be decided for autumn 2009
International Workshop on Coordination and Adaptation Techniques (WCAT)	L'Aquila, Italy September 2008 Location to be decided for autumn 2009
International Workshop on Quality-of-Service Concerns in Service Oriented Architectures (QoSCSOA)	Sidney, Australia December 2008
International Workshop on Middleware for Pervasive and Ad-Hoc Computing	Leuven, Belgium November 2008

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(MPAC)	
Workshop on Autonomic and Self-adaptive systems (WASELF)	Gijon, Spain October 2008 Location to be decided for autumn 2009

In addition to and on the basis of the conference and workshop publications, Clausthal University plans to publish a doctoral thesis within the OPEN project. It will basically deal with adapting the component instance wiring during runtime based on context information.

Aalborg University has a focus on IP based communication networks, especially regarding performance and dependability aspects, which results in the following candidate conferences shown in the table.

<b>Event</b>	<b>Location and date of event</b>
IEEE Globecom	Honolulu, Hawaii, USA November/December 2009
IEEE Infocom	Rio de Janeiro, Brazil April 2009
IEEE International Conference on Communications (ICC)	Dresden, Germany June 2009
IEEE/IFIP Conference Dependable Systems and Networks (DSN)	Estoril-Lisbon, Portugal June/July 2009
International Workshop on Mobile Peer-to-Peer (mP2P)	to be determined for 2009
International Symposium on Wireless Personal Multimedia Communications (WPMC)	to be determined for 2009
(IEEE NCAA)	Network Computing and Applications

On top of the conferences the following journals are candidate channels of publications for Aalborg University: Performance Evaluation transactions, IEEE transactions on communications, IEEE transactions on networking.

Beyond regular involvement in teaching activities, such as course lectures, meetings, the special set-up of teaching at Aalborg University creates opportunities for an internal scientific dissemination, which is also linked to industrial cooperations. On the one hand, all graduate students participate in the Aalborg model, i.e. self-determined, team-based learning in projects, which means, OPEN can be one of such student semester projects – both on both side output side (i.e. making the student aware of the problems in OPEN) and on the input side (i.e. the student giving feedback on (new) problem in OPEN when doing their projects).

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This can be linked to the Participation in "Life-long learning", a yearly, one week long teaching activity for graduates from Aalborg University.

The results with involvement by CNR-ISTI will be published both through conference and journal papers in the area of Human-Computer Interaction and Ubiquitous Systems. Possible conferences for CNR-ISTI are:

<b>Event</b>	<b>Location and date of event</b>
11th International Conference on Enterprise Information Systems	Milano, Italy May 2009
Engineering Interactive Systems	Pisa, Italy September 2008
Engineering Human-Computer Interaction 2009 (EHCI 09)	Pittsburgh, USA July 2009
ACM Conference on Computer-Human Interaction (ACM CHI)	Boston, Massachusetts, USA April 2009
International Symposium on Applications and the Internet	to be determined (North America) August 2009
ACM Symposium on Applied Computing	Honolulu, Hawaii, USA March 2009
INTERACT - IFIP conference on Human-Computer interaction	Uppsala, Sweden August 2009
Joint meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)	Amsterdam, The Netherlands August 2009
International Conference on Intelligent User Interfaces (IUI)	Sanibel Island, Florida February 2009
International Conference on Software Engineering (ICSE)	Vancouver, Canada May 2009
Future Internet Symposium (FIS)	Vienna, Austria September 2008
ServiceWave	Madrid, Spain December 2008

In addition, dissemination will be carried out also in university courses at University of Pisa and in various organizations at international level. Dr. Fabio Paternò has been invited to give courses at: HCIM'08 - Human Computer Interaction Meetings (September 2008), organised by CRS4, Cagliari (Italy); Swiss Winter School on "Usability Engineering", (January 2009) Anzere, Switzerland organized by the

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French speaking Swiss universities; and the course on Ubiquitous Computing (February 2009) organized by the Master on Software Development of the University of Granada. In addition, he is the chair of a panel at Mobile HCI conference, which takes place in September 2008 in Amsterdam on the future of Mobile HCI. In this panel he will present the OPEN project and how it can contribute to migratory interactive services, one important aspect for the Future Internet environments.

## **2.2 Industrial groups and other dissemination channels**

In order to avoid that the results of the project will be communicated to a limited community, various initiatives will be organized. To this end, we will organize seminars and workshops with industrial projects about related topics (starting with those industrial projects which already involve the industrial OPEN partners). Wider industrial groups will be reached through seminars presented to other organizations with which we are in contact, and to groups of industrial users. CNR-ISTI will give tutorials in international conferences in the multimodal interfaces and HCI areas presenting the project results as well as discuss them in university courses. They have also hosted a meeting of the Ubiquitous Web Applications W3C working group (<http://www.w3.org/2007/uwa/>) on July 24 and 25. The day before there was a meeting to consider the starting of the Layered User Interfaces Incubator Group, whose purpose is to evaluate the potential for applying XML to layered models of user interfaces for applications and business processes, and to propose standardization work on markup for the concrete UI layer, declarative descriptions of event handlers, and associated task models. The architecture caters for a wide variety of delivery contexts, including mobile devices. The plan is to actively contribute to this new W3C group.

Clausthal University and SAP Research have experiences in presenting demonstrators for dynamic adaptive systems on exhibitions like the CeBIT, the biggest IT related fair of the world. Demonstrators created during the OPEN project could be presented at the CeBIT to address not only IT experts but also to give laymen an impression of what OPEN is about and how it could enrich daily life.

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### 3. Collaboration plan

This section is dedicated to the envisaged activities of the OPEN consortium, which are related to cooperation and exchange with related projects and activities.

CNR-ISTI will actively collaborate in the Service Front Ends Collaboration Working Group in FP7 discussing with the experts of the other projects belonging to this group for creating a research agenda for this area. The project coordinator (Dr. Fabio Paternò) has attended two events for this purpose. The first one was the launch event organized by the European Commission in Brussels in March 2008, where he presented the OPEN project in the session on service front end. Then, he attended the Collaborative Working Group on Service Front Ends workshop, which took place on June 24 in Madrid, where he presented the OPEN project and participated in the initial discussion on Service front End position paper (<http://sfe.morfeo-project.org/documents/lng/es>). He has also been invited to give a presentation on User Interface Abstract Definition Languages at the Service Front Ends session at Collaboration Days on September 23.

CNR-ISTI also participate in the ServFace project and synergies with that consortium are planned as well as for instance:

- an exchange on tools, methods and techniques for adaptive user interfaces and user interface composition
- an exchange and comparison on technology for UI creation and control

Vodafone intends to cooperate with PERSONA (PERceptive Spaces prOMoting iNdependent Aging), which is dedicated to the quality and independence of the life of elderly people creating operational Assisted Living "Spaces". PERSONA is an integrated project funded by the European Commission within the 6th Framework Program for IST (Information Society Technologies) on Ambient Assisted Living for the Ageing Society. PERSONA, led by Vodafone Omnitel N.V. with the participation of 21 partners, intends to develop, prototype, evaluate and demonstrate Ambient Assisted Services integrated across three vital spaces where elderly people may live with the greatest possible independence and freedom: Ambient Living in the village, Ambient Living at home, Ambient Living-Neighbourhood. The organisational and topical relation between PERSONA and OPEN creates two opportunities:

- Technology developed in OPEN will be conceptually analysed regarding its feasibility regarding the scenarios from PERSONA.
- The other way around results and experiences from PERSONA inform Vodafone's conceptual proposals in OPEN.

SAP Research foresees synergies and collaboration with the emergency scenarios in the nationally funded SoKNOS project, which is led by SAP. SoKNOS targets concepts to supporting public and private organisations, which cooperate in the case of huge emergencies. These organizations have plan and decide quickly as well as safely and in a well-informed. The infrastructures, data and processes are distributed, which is reflected in the evolving SoKNOS architecture. The challenges and opportunities for a collaboration with OPEN are again centered around the preventive mission of SoKNOS and the application of OPEN technology for data collection and planning in the emergency scenario. This implies, that SoKNOS and OPEN together could:

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- discuss ways to enhance the exchange of planning and technical data, which are relevant for emergencies – for instance geographical and simulation data
- discuss ways, how shifts of competencies and extended roles in a planning and emergency staff can be reflected by the creation of migratory interfaces
- explore requirements and potential solutions coming along with mobility in an emergency scenario
- compare their respective approaches to service-orientation
- use the public forum for the relevant technologies in Germany together

Arcadia Design will explore possible cooperation with OpenInterface, a STREP project funded by the European Commission within the 6th Framework Program for IST, coordinated by Université Joseph Fourier Grenoble, where Arcadia Design is a Work Package leader. The aim of OpenInterface is to design and develop an open source platform for the rapid development of multimodal interactive systems as a central tool for an iterative user-centred design process.

As scenarios proposed by OPEN partners might require multimodal inputs, Arcadia Design will investigate the possible use of OpenInterface platform in the project, which is an excellent tool for choosing the appropriate multimodality to accomplish a task in a specific context.

Viceversa, OPEN will offer a context recognition and adaptation support which could be exploited by OpenInterface platform to improve the process of choosing the most appropriate multimodality.

In addition, the OPEN project subscribed the Future Internet manifesto launched by the European Commission. Two researchers attended the Future Internet assembly in Bled (Carmen Santoro, CNR-ISTI, and Steffen Glessner, NEC), in which a poster about the OPEN project was presented. The OPEN consortium plans to continue to contribute to this initiative a poster proposal has also been submitted and accepted for the FIS, which will take place in Wien.

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## 4. Exploitation plan

The following section is dedicated to the intentions of the consortium for an economical exploitation of the conceptual and technological results in OPEN. We first point at the general directions and finally sketch elements of a market analysis to be carried out.

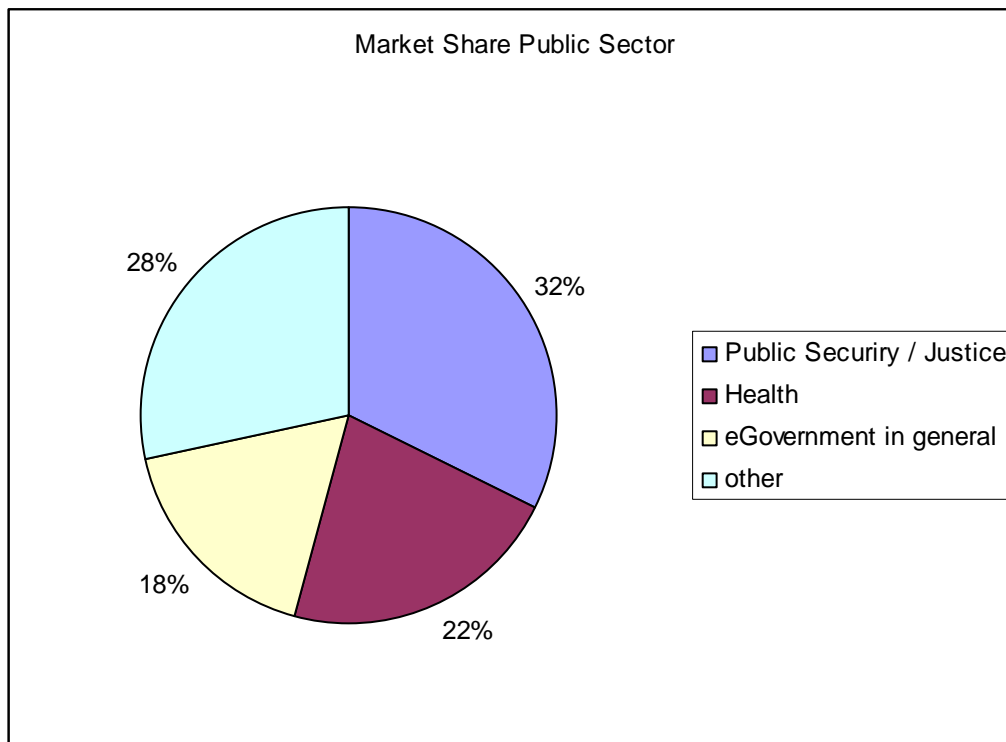
### 4.1 General directions

**CNR-ISTI** is a public research Institute, also actively involved in technology transfer to the industry and the society. The results of the OPEN project will be a set of methods, associated tools and prototypes obtained by the application of them. The principle routes through which CNR-ISTI will transfer exploitable results to the industrial and scientific communities are:

- Design Process Improvement. One important result of OPEN will be a service platform for supporting dynamic migratory multi-device user interfaces. By developing the techniques in conjunction with industrial partners we aim to ease the path for integrating research results into the design process employed by the current industrial practise.
- Results of the Application of Concepts Developed. Work on the case studies, involving collaboration between researchers and members of the industrial and assistance organisations taking part in the consortium will be ongoing over the life of the project. One result of the application of the methods developed will be prototypes that will be validated against user requirements. These user tests will allow current designers and developers to know how the new methods and technology can improve their work in order to address the needs of many applications in Europe.
- Industrial engineered products. We will also investigate how to obtain engineering products from the methods, tools and prototypes developed in the project, which can be exploited by the project partners or through specific spin-off companies to which CNR-ISTI can participate. We mean for engineered products applications which can be used in real context.

**SAP Research** aligns the exploitation of results with the emergency scenario. A general analysis of the public sector shows, that the potential market segment according to the data monitor: IT-Opportunities in State & Local Government, 06/05 (see [www.datamonitor.com](http://www.datamonitor.com)) is expected to be the top segment in terms of exploiting IT for public services.

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SAP will attempt to leverage this potential merging in the public sector. The measures and necessary contacts are can be summarized as follows:

- The collaboration with SoKNOS (see section 2) will facilitate end-user-oriented feedback by practitioners. Thus additional market requirements arise from SAP's contacts to customers. Special attention will be dedicated to cross-organisational aspects of such market requirements.
- SAP's internal specialised units and SAP's contact to consulting agencies dedicated to the public sector will bring in the expertise of projects with fire-brigades, police, emergency medical services and technical emergency support groups. This sharpens the view on market requirements for migration technology in planning as well as mobile support in emergency cases.
- SAP's expertise for the economical view on service-oriented architectures will contribute to a roadmap towards pricing and shipping of OPEN services
- SAP's contact to suppliers of geographical information will show the opportunities for OPEN technology with a regard to this specialized segment of information systems.

The technological elements, which are under a particular attention by SAP Research in the OPEN project are (from the exploitation point of view)

- adaptive User interfaces, especially for prediction and simulation
  - adaptive service-oriented platform and semantic technologies for the integration of public security and private organizations
  - means for modelling of situations, context and users and their interaction
  - management of organizations and their collaboration
  - IT-Security and Safety
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Beyond the concrete emergency scenario and its exploitable parts discussed above, SAP Research currently establishes very first contacts to business units. Example directions are the units “Public Services” and “Media”.

SAP solutions help governments and public organizations become more efficient and economical, improve their processes, and communicate with the public. OPEN offers SAP the opportunity for ideas in the portfolio for the needs of state, local, federal or central governments and public security organizations.

Public Sector organizations have the following needs, where an exploitation of results from the emergency scenario in OPEN might be beneficial. The organizations aim at cost reduction, ensure timely revenue collection, and make operations more effective. SAP also examines improvements of services from a citizen-oriented perspective, as well as increase employee efficiency and effectiveness. The exploitation of OPEN results might facilitate collaboration, efficiently manage mission-critical operations, and ensure that the appropriate data is shared in a secure environment. Continuing an emergency scenario, the techniques might create exploitable means of support complete visibility into logistics to enable leaders to make sound decisions.

SAP solutions also help to support and streamline processes throughout the value chain of companies in key segments of the media industry. For example, for broadcasters, SAP solutions support multi-channel program planning, program production and purchasing, and program asset management. For newspaper and magazine publishers, SAP solutions support customer management and order processing for advertising sales, subscription sales and distribution, and retail sales. Thus, the gaming scenarios and the IPTV scenarios from deliverable 1.1. might have an impact for premium content publishers and entertainment groups, which is to be discussed with the industrial unit “Media”.

The general directions of exploitations for **Vodafone Omnitel** are:

- extracting and improving research methods through a collaboration and comparison with well established research teams such the ones present in OPEN consortium.
  - The content adaptation and especially service continuity are expected to be areas where the user experience expectation will significantly increase in the short/medium terms. OPEN will provide a research environment to evaluate user experience evolution and its appealing for possible customers.
  - Vodafone Omnitel will take advantage of OPEN results in order to evaluate the opportunities to evolve its commercial offering regarding TV services verifying innovative services in the area of IPTV (or web based TV) and related services in market segments such as real time gaming and social networking.
  - Exploiting the project results trying to convince early technology adopters to explore the technology in order to improve their products and integrate them in industrial design flows. Vodafone commercial partners will be invited to Vodafone Omnitel Innovation Labs to present OPEN results and demos.
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As **Arcadia Design** is highly interested in the development of multiplatform games and applications, the OPEN results will be used internally to design new concepts for migrable multiplatform applications.

Moreover, Arcadia Design will exploit OPEN results by including the migration aspect in the development process, in order to offer innovative products to the market. The prototypes developed with OPEN platform will be presented to Arcadia Design commercial partners as a demonstration of potentialities and advantages of the new technology.

**NEC Laboratories Europe (NLE)** intends to pursue a two-fold exploitation of the research results in OPEN. Firstly, focusing in the the embedded and automotive industry in the context of NLE's Task programming Interface as well as related applications and research activities. The implementation phase of the OPEN project will also give useful insight and feedback regarding problems and difficulties in parallel programming, which will be used to further develop and improve NLE's programming libraries. Secondly, with its key role in the project's integration, NEC intends to build a multi-platform application framework that can be applied to a variety of products, extending their reach to the emerging pervasive environments. The usage of Context Information to handle this portability will strengthen NEC's Context Awareness solutions and its results will be considered as input for standardization bodies including OMA.

## **4.2 Market analysis**

The aim of a market analysis for OPEN is to identify and analyze the markets within which the OPEN system could operate. More specifically the trends in the market OPEN project aims to should be given, the various applications of the project as market segments, the market sizes in several European countries regarding the various markets and industry, analysis of technology competitors, analysis of technical OPEN contributions, and finally SWOT (strength, weaknesses, opportunities, threats) analysis.

The market analysis will be the basis for an interplay with Intellectual Property Rights issues. The basics are defined in the Consortium Agreement. Partners specific know-how is specified and preserved, results of the project are shared. The possibilities of successive agreements among partners expanding the content of the first Consortium Agreement will be explored in order to fully exploit the project results taking into account the obtained results, the market analysis and the market penetration capability of each industrial partner. It is envisaged that at the end of the pilot project, a viable exploitation agreement, satisfactory to all partners, will be established to cover the commercial exploitation of the OPEN project results.

The market analysis will at least include the following areas, which were also reflected in the scenarios reported in deliverable D 1.1:

- Middleware
  - Migratory Interfaces in general
  - Online Gaming
  - IPTV
  - Technology for planning in emergency cases / public security / emergency staff
-