



Engineering@work: an AMI@work community dedicated to a comprehensive life cycle perspective for ubiquitous engineering

Context

The **Engineering@Work** community is one among several communities of the Ambient Intelligence At Work (**AMI@Work**) family of communities that has been launched in 2004 by the *New Working Environments* unit of the European Commission's Information Society Directorate-General. The main objective of AMI@Work is to foster Information Society Technologies (IST) research to catalyse systemic innovation, in order to enable high-quality and productive person-centric and collaborative new working environments in Europe. To achieve this aim, it is necessary to link European communities of research and deployment in a cross-disciplinary manner.

The AMI@Work family of self-organising communities links people in all 25 EU Member States (and beyond) for a European Research and innovation Area (ERA) at work. This family is to facilitate new working environments innovation ERA-wide and in EU 6th and 7th Framework Programmes of research (FP6 and FP7). The various communities can be seen as cross-fertilising development organisations or transition arenas to reach for crucial systemic changes collaboratively, and to create a path to the future, together with technological and societal innovators, in order to reach the targeted systemic innovation. The *Engineering@Work* community, among other communities dedicated to *Collaboration@Work*, *Mobility@Work*, *Knowledge@Work*, etc., has the ambition to come with a new comprehensive vision of ubiquitous engineering supported by enhanced collaborative technologies and future collaborative workspaces and environments.

Vision

The Engineering@work community vision is the one of a new competitiveness paradigm based on service-oriented ubiquitous engineering, relying on personalized service product integrated offering, enabled by modularity, flexibility and re-configurability of service-product-organization "components", that must lead to "ubiquitous work environment in a service – product – organization concurrent development perspective".

Community Mission and Goals

The Engineering@work community is to become an attractor for significant cross-sectoral industrial and multidisciplinary stakeholders' participation, so to reach a critical mass of most talented individuals, and aggregating marketing, servicing, design, engineering and manufacturing disciplines. The community is a self-organized group of individuals, with a dynamic leadership "core team" composed of those members proposing and co-ordinating community projects. The mission and main goals of the community are:

- Develop a vision up to 2010 for ubiquitous engineering, following an holistic approach that includes considerations for organization, product and service, technology, as well as people. Such a vision is to promote the development of service-oriented innovative work environments that would allow to combine technology-based innovations, productivity, societal progress and quality of life, and sustain enhanced product design and service creation;
- Identify medium and long term key challenges and research topics in the field of ubiquitous engineering in collaborative new working environments, and contribute to the activities of the research community, e.g. by developing visions, scenarios, RTD roadmaps, Research Proposals, and disseminating information;
- Assemble a critical mass (of at least more than 200 main actors throughout Europe) from various industry sectors that groups together leaders, experts, users, and developers, in the area of ubiquitous engineering, and aggregates complementary competences targeting common objectives;
- Create a well-known Engineering@Work community image, recruit key players in Europe in the areas of interest for the community and establish a committed core group, manage the community, support Web interaction between all the community members, and organize dedicated meetings;
- Establish connections with existing relevant community (e.g. ESoCE-NET) and complementary networks, across the 25 EU Member States - and beyond;
- Define continuously a yearly agenda of activities for the community.

Objectives and Impacts

The Community objectives are as follows:

- Exploration of future ambient workspaces and working relationships for the engineering sectors to improve their life-cycle productivity and competitiveness in the global market;
- Elaboration of a ubiquitous engineering IT infrastructure, leading to the establishment of a future ambient intelligence Engineering European Infrastructure;

Expected impacts are to be considered from several perspectives – including People, Organisation and Product:

- Workers, with better working environments (work life balance, safety, social interaction, creativity, learning, ...);
- Users, with better products and services, particularly customised and on-demand services;
- Society at Large: Sustainability (Environment, Economic, Social/Cultural);
- Organisation: improved productivity, competitiveness, agility, collaborative networks, improved human assets ...;
- Products and Services: new dimensions of Quality (Life cycle performance, embedded intelligence, sustainable serviceability), increased fit for purpose.

Targeted initial Sectors are: Aerospace, Automotive, Construction, and White Goods.

Key challenges and research topics in a Nutshell

The R&D domains and topics identified so far by the community are:

- Methodologies for implementing Concurrent Engineering throughout product-service life cycle, including potential use of advanced simulation and educational games. This is also about all (ICT-based) applications communications during construction life-cycles and supply-chains achieved in a fully neutral way through flexible interfaces at a high semantic level.
- Collaborative Workspaces for individuals, teams and communities (so as to move work to people rather than moving people to work).
- Embedded intelligence in products for supporting maintenance and end of life cycle phase and for providing better services and feedback for future design concepts.
- New Business Models for future products-service (access vs. ownership...).
- SMEs Collaborative Networks Workspaces.

Contact Points / Leaders for *Engineering@Work* main topics:

- **Methodologies for implementing Concurrent Engineering throughout product-service life cycle:** Pekka Huovila (Pekka.Huovila@vtt.fi) - VTT / Finland
- **Collaborative Workspaces for individuals, teams and communities:** Terrence Fernando (T.Fernando@salford.ac.uk) - University of Salford / United Kingdom
- **Embedded intelligence in products for supporting maintenance and end of life cycle phase and for providing better services and feedback for future design concepts:** Jens Schumacher (esc@biba.uni-bremen.de) – BIBA / Germany
- **New Business Models for future products-service:** Volker Stich (st@fir.rwth-aachen.de) - FIR / Denmark
- **SMEs Collaborative Networks Workspaces:** Olivier Rerolle (o.rerolle@vigie.adepta.asso.fr) - ADEPA / France

The Community agenda

The agenda of activities for the Community:

- Face to face meetings opportunities
 - IST 2004 – 15th November in The Hague– networking session jointly organised with MOSAIC;
 - E-Challenges – 27th October in Vienna;
 - ESoCE-NET 6th December in Rome – Industrial Forum.

WEB site: www.AMIatWork.com - select “Validation Environments / Engineering@Work”

Engineering@Work Main Contact Points

Chair: Roberto Santoro, ESoCE-NET, Italy – email: rsantoro@esoce.net

Vice-Chair: Olivier Rerolle, ADEPA, France – email: o.rerolle@vigie.adepta.asso.fr

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