



Project Profile

Improving productivity of collaborative systems development

Through improved development technologies and tool integration



Globally-distributed software engineering (GDSE) offers many opportunities, such as access to scarce resources and knowledge, savings in development times and costs, and being close to global customers. However, collaborative development makes it at the same time more complex; for example, development teams are usually dispersed over different time zones, continents and cultures, which places high demands on communications, teamwork and working methods. The PRISMA project will add industrial working methods and technologies to ensure productivity gains from collaboration.

In the perspective of growing size and complexity of embedded systems, companies are not able to develop all functionality by themselves. As a result, to be competitive, products need to be developed in a network of companies where suppliers specialise in specific functionality or skills which they can sell to others. In fact, the number of outsourcing constructions has been growing tremendously in recent years. Despite the potential benefits of collaborative software development, experiences are generally disappointing. Many companies have reported their discontent over low productivity and quality, and schedule and budget overruns. Industrial experiences show that productivity drops by at least a factor two when development takes place at more than one site. In addition, cultural and communications aspects have their decreasing influence on teamwork, resulting in lower productivity.

BOOSTING COLLABORATIVE PRODUCTIVITY

Industry is facing a trend of rapidly increasing collaborative development but suffers from a rapidly decreasing

productivity as a result. Therefore, productivity-increasing technologies and work methods are needed to improve the development of software for embedded systems.

The main goal of PRISMA is to boost productivity of collaborative systems development by means of:

- Enabling and improving interoperability of tools; and
- Developing and selecting supporting productivity improvement assets in the areas of:
 - Domain-specific optimisation and tuning of proven collaboration technologies,
 - Rework prevention by early validation and alignment of requirements interpretation,
 - Development optimisation through partner alignment, and
 - Value estimation and measurement.

SUPPORTING EFFECTIVE COLLABORATION

The need for techniques supporting effective collaboration is growing to meet the trends in both horizontal business strategy and global spreading of activities. Moreover, the need for high quality techniques, proven to be effective, is higher for working in collaboration compared with working in isolation because of the leverage effect – the effect of non-working technologies is experienced by each collaboration partner.

Current information-technology (IT) tools supporting collaborative development range from very simple – such as email, phone and fax – to advanced, like collaborative design software. Survey results find that few companies – 9% – are fully satisfied with their current set of tools. The market for advanced collaboration tools is still in its infancy and evolving rapidly.

PRISMA (ITEA 2 ~ 07024)



■ Partners

- CBT
- Delft University of Technology
- Innovalia Association
- Logica
- Nextel
- Nokia Siemens Networks
- Philips
- Rhea System S.A.
- SQS
- Tieto Enator Alise
- University of Latvia
- University of Oulu
- VTT Technical Research Centre of Finland

■ Countries involved

- Belgium
- Finland
- Latvia
- The Netherlands
- Spain

■ Project start

October 2008

■ Project end

March 2011

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Additionally, the lack of consistent, formal co-development processes makes it difficult to realise the potential of sophisticated IT for development efforts.

Currently there are many product-development tools, often with dedicated, specific strengths. However, they are inadequately integrated and poorly interoperable. At worst, manual work is required to transfer data between tools. One provider's tools are integrated, and there are also service providers that offer predefined sets of integrated tools.

At present, the main available solutions are the totally integrated tool sets offered by the large tool vendors. These bundled tool chains solve the problems only partially and create dependency on the particular tool vendor. For instance, introduction of a good new tool from another vendor impedes the total development process dramatically, due to poor integrability of single tools.

DEVELOPING TOOL AND NON-TOOL TECHNOLOGIES

Requirements for productivity-improving assets steer the developments in the PRISMA project. Part of these requirements will be implemented as part of the PRISMA Software Workbench (PSW), but some of them will not be realisable as tool-based solution while still being crucial for productivity improvements in collaborative product development. Thus, non-tool technologies – integrated combinations of methodology, processes and domain-specific experience – will be also developed. The tooling part is integrated in the PSW and the non-software solutions in the PRISMA Wiki.

The PSW to be developed in PRISMA aims to provide new solution to advance integrability of development tools. The aim is not to provide yet another set of integrated tools but rather to supply an answer that ensures flexible and easy integratability of tools. The PSW aims to make point-to-point integrations feasible, tailored to individual needs of specific situations. Similarly, the PSW intends to make creating framework-based integrations easier.

The main vehicles for integration of experiences in an innovation solution are the industrial use cases. These cases provide domain-specific experience and

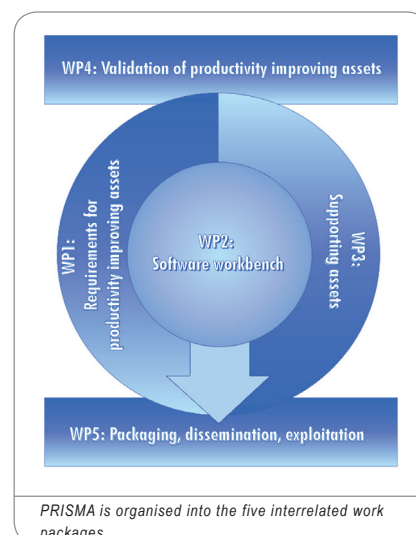
validate proposed innovative solutions, with a focus on the use of PSW to boost productivity. The industrial cases are the basis for choosing innovation strategy in the PSW development.

Industrial cases results will be packaged into reusable experience in both PSW and entries in the PRISMA Wiki. Effectiveness of productivity-boosting technologies can only be proven when their business value is known and when such value estimations include proper risk quantification. Therefore, value estimation and measurement will be an explicit aspect of the PRISMA industrial cases.

TARGETING TWO MAJOR RESULTS

Expected results of the PRISMA project are twofold:

1. A software workbench – the PSW – which enables generation of an integrated environment supporting collaborative software development. The PSW will allow for a configurable set of development tools, tailored to individual partner or project needs. Tools incorporated in the PSW will originate from different tool vendors, the PRISMA project itself and open source. New tools can be incorporated in the PSW using a standard application program Interface.
2. A number of assets that will support collaborative software development in the form of processes, methods and practices. These results will be packaged as descriptions and made available as the PRISMA Wiki for dissemination, exploitation and further development.



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■ ITEA 2 – Information Technology for European Advancement – is Europe's premier co-operative R&D programme driving pre-competitive research on embedded and distributed software-intensive systems and services. As a EUREKA strategic Cluster, we support co-ordinated national funding submissions and provide the link between those who provide finance, technology and software engineering. Our aim is to mobilise a total of 20,000 person-years over the full eight-year period of our programme from 2006 to 2013.

■ ITEA 2-labelled projects are industry-driven initiatives building vital middleware and preparing standards to lay the foundations for the next generation of products, systems, appliances and services. Our programme results in real product innovation that boosts European competitiveness in a wide range of industries. Specifically, we play a key role in crucial application domains where software dominates, such as aerospace, automotive, consumer electronics, healthcare/medical systems and telecommunications.

■ ITEA 2 projects involve complementary R&D from at least two companies in two countries. We issue annual Calls for Projects, evaluate projects and help bring research partners together. Our projects are open to partners from large industrial companies and small and medium-sized enterprises (SMEs) as well as public research institutes and universities.

