Project Results

Improving distributed software systems development

Wiki and software workbench tackle challenges of globally distributed software-intensive systems development

Collaborative software systems development is now a fact of industrial life. The ITEA 2 PRISMA project developed a web-based Wiki of good practices and a software workbench tool supporting shared methodology to improve the quality, productivity and effectiveness of globally distributed software system development. Project partners demonstrated faster development with lower costs. The SameRoomSpirit Wiki is already publically available.

Globally distributed systems development (GSD) has been growing fast with outsourcing, subcontracting, distributed working, multi-site development and joint ventures. Some 81% of software developers now interact with colleagues from different sites, while 87% spend time working with external partners.

Reasons for collaboration include cheaper labour and the ability to capitalise on the global resource pool to access scarce resources successfully and cost competitively, wherever located. Pressure to cut time to market encourages using time-zone differences in 'round-the-clock' development. And the resulting flexibility makes it possible to capitalise on merger and acquisition opportunities wherever they present themselves.

OVERCOMING DROP IN PRODUCTIVITY
However, productivity in GSD projects can drop by 50%, with rework two to five times greater than for co-located projects. Philips' experience indicates that productivity drops by a factor of two to three when the number of sites increases by one to two or more. And Nokia Siemens Networks' experience shows factors such as communications, transfer of documentation and results, distributed testing and testing environments are not yet at a level to increase productivity in collaborative product creation.

PRISMA set out to boost productivity of collaborative systems' development by enhancing and supporting asset improvements – including methods, practices and techniques – and improving tool interoperability. It resulted in:

1. **SameRoomSpirit Wiki** – with practical solutions to meet the industrial challenges of GSD; and
2. **PRISMA software workbench** (PSW) to enhance awareness and synchronisation of assets by enabling interoperability of development tools in collaborative settings.

USER-FRIENDLY WEB-BASED APPROACH
The SameRoomSpirit Wiki improves collaborative software development by providing solutions to typical development issues. It provides industrial experiences and best practices in the form of reported processes, methods and practices in a user-friendly web-based Wiki. The first version was based on the ITEA MERLIN project collaboration handbook.

Assets are continuously collected from various sources, including industrial case studies and experience reports, master's theses and related literature. Wiki content is categorised in five different ways to simplify browsing and help find the appropriate set of assets to meet specific industrial challenges.

Project Results

Solutions are now based on more than 130 published technical articles. Some 27% of solution descriptions are based on the industrial partners' experience, 46% on literature and 27% on a combination of both. The Wiki was piloted within PRISMA partners and experimented in two industrial GSD cases at ABB and Symbio.

WORKBENCH AMALGAMATES RESULTS

The PSW approach amalgamates results from many different kinds of tools found in GSD environments. The PSW integrates and manages the distributed data and tools efficiently, building on the experience of the ITEA MERLIN and TWINS projects tool chains.

Real-time views of data, use of legacy tools and distributed support are all offered with:

- Enhanced awareness of important project events;
- Management and inspection of relationships between work products developed in different settings;
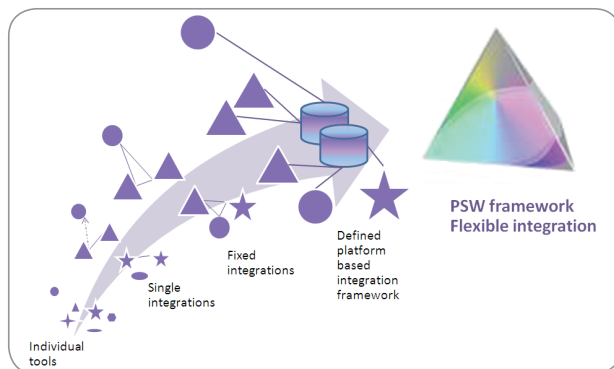- Data available to all partners;
- Shared workspaces; and
- Simplified project management reporting.

Quantified achievements included:

- Time wasted on projects down from 19% to 10.5% for ABB;
- Overconsumption of human resources reduced from 80% to 25% by Symbio;
- Reduction in duration of requirements analysis from 50 to 10 days by Nokia Systems Networks; and
- A 60% drop in the number of bugs found during development by CBT.

WIKI ALREADY AVAILABLE

Exploitation is already starting with the SameRoomSpirit Wiki publically available (http://www.sameroomspirit.org). VTT, Innovalia Association and others are supplying consultation packages on GSD challenges and their solutions. And the PSW tool has become standard within Symbio – an SME which has grown tenfold in the past years – and which plans to use it further in the communications with its clients.

Individual tools · Single integrations · Fixed integrations · Defined platform based integration framework · **PSW framework Flexible integration**

Major project outcomes

DISSEMINATION

- 14 scientific publications
- 19 presentations at conferences/fairs
- 12 posters
- 2 leaflets
- 2 newsletters
- Several demonstrators of Prisma software workbench (PSW) and SameRoomSpirit Wiki settings in different events

EXPLOITATION

- A new product: Prisma software workbench (PSW). PSW enhances awareness and synchronization of assets in global software development by enabling interoperability of various software development tools in collaborative settings.
- A new system: SameRoomSpirit Wiki: a web-based system offering practical solutions to meet the industrial challenges of global software development
- 10 new consultation services created.

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PRISMA
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