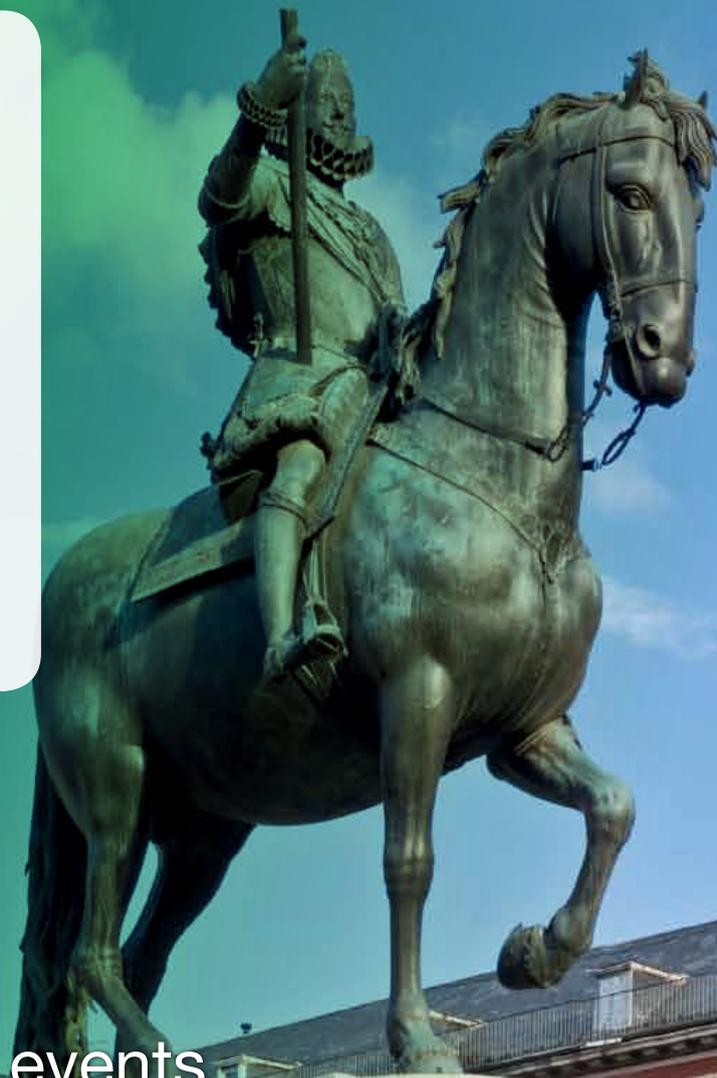


ITEA 2

M

Magazine

DECEMBER 2011 • NO. 11



Highlighting key ITEA events

Co-summit 2011 and PO Days 2012

Concentrating support on SMEs for  
future prosperity

Focus on Sweden

Ensuring a socially acceptable  
approach to security

RECONSURVE & SPY



INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

European leadership in Software-intensive Systems  
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ITEA 2 is a EUREKA strategic ICT Cluster programme

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INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT



ITEA 2 (Information Technology for European Advancement) is Europe's premier industry-driven co-operative programme for pre-competitive R&D in Software-intensive Systems and Services (SiSS).

As a EUREKA Cluster programme, ITEA 2 stimulates and supports projects that will give European industry a leading edge in the area of SiSS.

**M** – ITEA 2 Magazine is published three times per year by the ITEA 2 Office. Its aim is to keep the ITEA 2 community around the ITEA 2 projects updated about the ITEA 2 programme status and progress, achievements, projects and events.

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Opinions expressed in the M – ITEA 2 Magazine do not necessarily reflect those of the organisation.

Special thanks to all contributors to this issue of the M – ITEA 2 Magazine.

## Editorial

Dear colleagues & friends,  
Dear members of the ITEA family,

At the turn of the year 2011/2012, ITEA is on the road, on the 'Road to ITEA 3'

This road has been built in 2011 jointly by our Board Support Group and our ITEA Authorities Committee (ITAC). It was approved by the ITEA Board and the ITEA Directors Committee at the Co-Summit on 26 October in Helsinki.

The main characteristics of the road to ITEA 3 are:

- ITEA 3 will be a *living organisation* to ensure adaptability to changes in our environment including possible crisis scenarios in some companies or countries. And, as we expect even more rapid changes in business and technology, the ITEA 3 road map will be a *living document*.
- We will go down the road together with our partner Clusters in EUREKA and our strategic partner ARTEMIS. Together we are paving the way towards a Global Web of Clusters as we share the understanding that research and innovation today are a global exercise.
- Together with our partners from ITAC, we will undertake utmost attempts to shorten the decision processes from project idea to project funding to serve even better our joint high-level goals: innovation, business impact, fast exploitation.

In summary, the road to ITEA 3 will help us to keep our strength and adapt to future challenges.

However, with all these strategic activities going on and attracting a lot of our attention, we never forget: ITEA is about projects. Our projects being of concrete relevance for all companies and countries involved are at the core of ITEA. This was convincingly demonstrated again by the exhibition during the Co-Summit in Helsinki.

With our award winners we underlined: *'standardisation is silver, exploitation is gold'*.

Silver award winner METAVERSE set out to define a global standard for connecting virtual worlds with the real world. The METAVERSE team achieved its ambitious goal and in January 2011 could present the global MPEG-V standard during a major event in Korea. USENET's goal has been to overcome the fragmentations

in machine-to-machine communication between vertical applications in for example healthcare, building management, automotive and energy management. The USENET team has been rewarded by another silver medal for demonstrating the feasibility of a horizontal standard and initiating a standardisation process at ETSI.

The gold award 2011 went to MULTIPOL, a project addressing smart access control to company infrastructures – physical and digital (buildings, offices, software, hardware, databases and applications). There the major challenge is to manage control across organisational boundaries, such as in post-merger integrations, subcontracting or virtual enterprises. MULTIPOL established a mathematical theory of access control in which mergers or co-operations are mathematical operations. The theory has been implemented in working software solutions, which generated concrete business impacts during the lifetime of the project: *fast exploitation*.

What will 2012 bring?

We start the year with our project outline preparation days in Madrid on 1 and 2 February. We will further strengthen our family links within EUREKA with joint activities on ICT for clean tech, water and food. Together with ARTEMIS, we will establish a high-level industrial council on embedded systems and software intensive systems & services.

In April, we expect a decision on the *ITEA 3 label* by the ITEA Directors Committee. In June, the EUREKA High Level Group meeting in Budapest is expected to award us the EUREKA label for ITEA 3. Finally, in October, we will have our next Co-Summit with ARTEMIS in Paris.

And, throughout the year, we we will observe exciting project results demonstrating innovation, business impact and fast exploitation.

*With this in mind, I wish you a merry Christmas and a successful New Year 2012!*

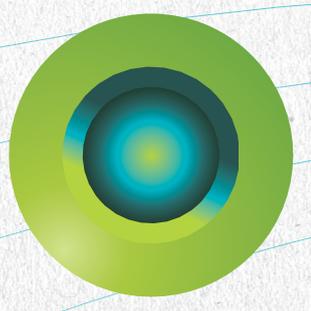
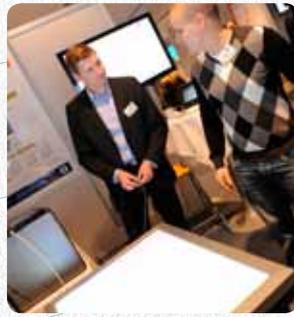
*Sincerely yours*



Rudolf Haggenmüller



**Rudolf Haggenmüller**  
*ITEA 2 Chairman*



# CO-SUMMIT 2011



## CROSS-BORDER COOPERATION FOR CLEAN TECHNOLOGIES



# Cross-border collaboration drives software-intensive systems and services development across Europe

More than 650 R&D actors and policy makers from industry, research organisations, academia and public authorities participated in the fourth European Co-summit organised by ITEA 2 and ARTEMIS in Helsinki, Finland on 25 and 26 October 2011. While the conference focused on the importance of cross-border co-operation in research and development on software-intensive systems and services, the large project exhibition demonstrated clearly the results of such efforts with a special focus area on information and communication technology (ICT) for clean technologies.

“Cross-border co-operation in research is crucial,” insisted ITEA 2 Chairman Rudolf Haggemüller at the start of the Helsinki Co-summit. “And we are open to co-operation beyond the ICT community, particularly through interactions with other EUREKA Clusters to meet common societal challenges such as in clean technologies.” It is equally important to ensure fast exploitation of results as ably demonstrated by the ITEA 2 ITEI project which developed a body of knowledge for a systematic approach to innovation already being exploited in education and training. ITEA 2 also supports the newly formed European expert Group CREATOR which brings together Institut Telecom, Sirris and VTT to boost ICT innovation efforts of European companies.

Close collaboration between ITEA 2 and the ARTEMIS Joint Undertaking (JU) has ensured a complementary approach to embedded software and software-systems and services research in Europe and helped develop a critical mass to boost competitiveness and the wellbeing of society.

“We are strongly committed to working closely together and have now formed a high-level umbrella group to align strategic issues and identify gaps between our two organisations,” said Klaus Grimm, President of the ARTEMIS Industry Association. “We have been organising this co-summit for four years now,” pointed out Rudolf Haggemüller. “We are already operationally close and will now be closer

strategically with the first meeting of the high level group before the end of the year.”

Both organisations concentrated on strategic issues in 2011. ARTEMIS launched a new Strategic Research Agenda, while ITEA 2 is preparing a ‘living’ road map which can be constantly updated to focus efforts as it moves towards ITEA 3. A meeting of the ITEA Directors Committee during the 2011 Co-summit, involving public authorities, confirmed support for the road towards the third ITEA programme. This was warmly welcomed by Rudolf Haggemüller who also emphasised the need to shorten the time between project proposals and the start of projects.

#### **STRONG COMMITMENT TO ICT IN FINLAND**

Jouni Hakala, State Secretary for Economic Affairs, Ministry of Employment and the Economy, opened the conference with Finland’s strong commitment to the ICT sector and its importance for the national economy. Finland supports both ITEA and EU programmes but sees a need for a new generation of funding instruments that builds on their expertise.

In a keynote presentation, Ken Sakamura, Professor of the University of Tokyo and CEO of the YRP Ubiquitous Networking Laboratory, demonstrated the importance of real-time operating systems in national emergencies such as the 2011 Japanese earthquake and devastating tsunami. He also pointed out that although embedded systems cannot produce energy, they can help efficient use and reduce wastage.

A panel session on cross-border research co-operation re-emphasised the importance of ICT in saving energy and in developing clean technologies

#### **STRIKING DISPLAY OF COLLABORATIVE RESEARCH**

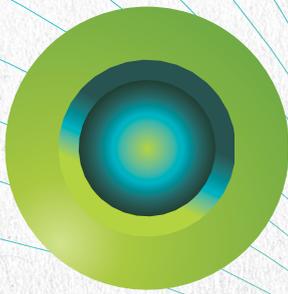
Some 76 ITEA and ARTEMIS projects presented their results with achievements and demonstrations in the Co-summit project exhibition which provided an outstanding showcase for collaborative ICT research in Europe. A special focus area on clean technologies involved relevant ITEA and ARTEMIS projects as well as the EUREKA ACQUEAU water and EUROIGIA+ low carbon energy Clusters. Other exhibitors included national competitiveness clusters, Tekes, EIT ICT Labs and EUREKA.

The ITEA 2 exhibition award 2011 for the best and most understandable ITEA 2 project went to DIAMONDS. This project is developing a new, model-based approach to software testing with applications in multiple industries – such as banking, transport and telecommunication. The ARTEMIS exhibition award went to eSONIA. This project aims to improve efficiency and safety of industrial facilities by realising the asset-aware and self-recovering plant through the use of IPv6-based embedded devices.

– such as the Green Touch Consortium of leading ICT industry, academic and research experts dedicated to creating a sustainable Internet and increasing ICT energy efficiency by a factor of 1,000 over five years. Priorities should be for the ICT industry to cut its own energy use particularly in data centres where renewables should suffice to provide power. Political commitment is also essential as there is no time left for rehearsals in tackling climate change.

#### **DEVELOPING LIVING ROADMAP FOR ITEA 3**

In the ITEA Community session, ITEA 2 Vice Chairman Philippe Letellier outlined the changes expected in



ITEA 3: "We will keep the same values but the new programme will be more agile with its living roadmap offering a dynamic shared view of future challenges, shorter times from project ideas to project starts and greater exploitation of the links with other clusters – both at European and national level."

The new roadmap will propose challenges from the projects and ITEA community, gather state of the art from the projects and open discussions with experts from other programmes to help evaluate the level of innovation in projects and aid consortia in ensuring the level of innovation delivered.

Philippe Letellier also highlighted the increasing service focus of ITEA projects with service as a response to societal challenges and the user-centred design of systems. "Horizontal open platforms will break vertical market fragmentation and ensure service innovation can be independent of specific software and hardware components," he insisted.

Fast exploitation of research results has long been a focus for ITEA. Rudolf Haggenmüller believes strongly that in the year a project ends, some results should get to market. He discussed with Willem Jonker, CEO of EIT ICT Labs the proposed co-operation between ITEA and EIT ICT Labs to improve the use of research results in Europe. "I strongly support this collaboration to create a vivid ecosystem for ICT innovation and speed exploitation with concrete results," said Rudolf Haggenmüller.

#### HIGH STANDARDS IN ITEA ACHIEVEMENT AWARDS

The standard of ITEA 2 projects finishing in 2011 was high, making the choice of winners of the 2011 ITEA Achievement Awards particularly hard. These awards

reward high-level technical contributions based on real European collaboration providing significant results while promoting ITEA and its aims. "We're very proud of all three short-listed projects and it was hard to differentiate between them," said Philippe Letellier. The result was two joint Silver awards – UseNet and Metaverse1 – while the Gold award went to MULTIPOL.

MULTIPOL delivered a full authorisation chain with mechanisms to solve the challenge of easy multi-domain access-rights management while balancing security and agility to enable safe access to business applications across organisations. Business potential is high with fast exploitation – such as Cassidian's legal-enquiry use case and Evidian's new identity and access manager – and with very positive first customer feedback.

The Metaverse1 project focused on the connection between virtual and real worlds. Key outcomes included a generic architecture supporting sensor/actuator/robot integration, avatar modelling and hybrid communications. Its most important result was the ISO/IEC 23005 standard evolved through a great involvement of the project in MPEG-V. Use cases prefigure business in virtual travel, serious gaming and virtual presence.

UseNet developed an open architecture providing a horizontal approach to the vertically fragmented machine-to-machine (M2M) market. Its greatest innovation is the M2M Internet; separating services from infrastructures, dramatically increasing the potential market for M2M deployments. UseNet played a major role in the new ETSI M2M TC standard. Highlights include fast exploitation of e.g. the Ouman

#### PARALLEL SESSIONS AND STUDENT MASTER CLASS

The role of ICT in mobility, healthcare and security were the subjects of three parallel sessions on the first afternoon. For summaries of these sessions, please see the next pages.

At the same time, a student master class was held for masters and doctoral students in co-operation with the University of Helsinki, Tampere University of Technology and Aalto University.

centralised remote control service system for building automation, Fagor monitoring of domestic appliances and Bull and Thales tracking and geo-localisation of vehicles.

#### NATIONAL AND INTERNATIONAL CO-OPERATION

Cecile Dubarry, Director of the Service for Communication and Information Technologies at the French Ministry of Economy, Industry and Employment, offered some final thoughts for the Co-summit. "National competitiveness clusters play a key role as efficient tools and we see EUREKA Clusters as a natural partner," she said. "We support co-operation between ITEA and ARTEMIS, and we welcome ITEA 3."

*Post-event information on the ITEA & ARTEMIS Co-summit 2011 (including all presentations and a photo gallery) can be found at: [www.itea2.org/cosummit2011](http://www.itea2.org/cosummit2011)*

# Co-summit parallel sessions

## Trends in ICT security

By: Janne Järvinen, F-Secure

Security is becoming a key for the digital world as the influence of ICT is spreading to many different industries and communities. ITEA and Artemis have already supported many projects on this topic.

This session focused in sharing among our communities a vision of significant trends in ICT security.

The session viewpoint was of European industry and covered different layers in the field by the following speakers:

- *Mika Ståhlberg*, F-Secure VP of the Security Labs, saw a rising trend in three threat categories: criminal activities, hacktivism and nation-focused targeted attacks.
- *Juha Rönning*, Professor at the University of Oulu, presented security in software protocols in the cloud. He saw that the increasing chaos of protocols presents a big challenge to the industry

and more investment is needed to be able to secure the cloud – for example in robustness testing.

- *Thierry Winter*, CTO of Evidian, focused on identity and access management (IAM) which is very much a growing market as systems become more complex and yet there is a need to increase operational efficiency and improve user experience and convenience. Key topics for innovation and R&D investments include security-as-a-service and especially security for cloud environments. Also an increasing diversity of endpoint devices needs to be managed. Finally, security intelligence remains a major research area for IAM.
- *Hassan Triqui*, CEO Secure IC, suggested hardware security is becoming a major issue which encompasses especially the ever-growing number of interconnected devices in the areas of digital trust, privacy and safety. We need to understand the return on investment of a potential

loss to judge how much security is sufficient.

- *Josef Noll*, professor at University of Oslo and CTO Movation, asserted that security, privacy and dependability are among the main challenges for the Internet of Things which consists of heterogeneous infrastructures and sensor systems. He proposed to approach these challenges for example via trust-based security and security metrics.

All in all we had a very intensive session with a lot of discussion. One specific outcome was that we need to have a more permanent forum to discuss ICT security related issues within ITEA and ARTEMIS. There are many activities in many projects but continuous communication and collaboration also between and over projects is essential not only from a dissemination perspective but also in joining forces in finding the best solutions most cost-efficiently.

## The future of the role of ICT in automotive mobility

By: Marco Ottella, Centro Ricerche FIAT

Some 50 years of progress in ICT has improved our lives at home, in our offices and in our factories, and is expected to produce an even higher impact on the way we move. In the past, ICT helped cut polluting emissions from internal combustion engines (ICE) by a factor of 100. Further reductions are expected in the short term; in the mid term, electric vehicles

will be the first option to tackle the shortage of fossil fuel while fully exploiting the potential of renewable energy.

Thanks to progress in ICT, the number of electrically-propelled vehicles is rapidly catching up with that of ICE-powered ones. At the same time, the production

of energy from renewable resources is overtaking that from nuclear sources.

Moreover, ICT is expected to allow cars to drive by themselves, guided by the infrastructure or by artificial intelligence making vehicles cleaner, quieter, more efficient and less expensive.

ITEA 2 and ARTEMIS have launched several research programmes dedicated to designing the mobility of the future, facilitating the co-operation of companies, institutions, SMEs and public authorities for a future where the car is expected to become a kind of 'computer on wheels'.

Four experts – Louis-Claude Vrignaud and Stefan Voget from Continental, Aard Van Weezel from Dutch SME Duracar and Pekka Ollikainen from Tekes – discussed their views in a Co-summit session dedicated to automotive. Following a short presentation from each speaker, a panel discussion was facilitated by Marco Ottella, Centro Ricerche FIAT

with the active participation of the audience.

All the experts agreed with the fact that the ICT is pervasively entering all means of transport from the core powertrain systems up to safety and comfort features, thus evolving mobility from a product- to a service-based approach.

The importance of co-operation in publically-funded projects was well recognised: several success stories were presented together with their impact on standardisation and in the creation of a common technological background. The speakers strongly recommended more involvement from standardisation

bodies – CEN and CENELEC ([www.cen.eu/go/eMobility](http://www.cen.eu/go/eMobility)) – in such research projects to facilitate and speed industrial deployment of the emerging technologies.

Moreover the role of SMEs – which employ about 2/3 of the EU25 workforce – in particular in the field of electrical mobility where the first market opportunities are expected in lightweight urban vehicles, was identified as key for the competitiveness of European industry.

## Embedded Systems for the healthcare life cycle

By: Casper Garos & Ronald Begeer, Philips Healthcare

Casper Garos, Philips Healthcare organised a parallel session on healthcare – a societal need which will largely determine economic activity in the embedded systems domain in coming decades.

Globally, economic standards are rising – especially in emerging countries – and demand for affordable and high quality healthcare will increase. This will augment the shortage of professional staff. Spending on healthcare is expected rise to 15% of gross domestic product in many countries.

Several ITEA 2 and ARTEMIS projects leaders explained how their work contributed to addressing societal challenges in healthcare.

Casper Garos provided an application and technology roadmap for a set of projects related to healthcare. These not only covered activities in hospital, but also the entire care cycle, including home care. Embedded systems are expected to change the way people are treated dramatically. Diagnostic imaging will be used increasingly to guide surgeons during operations. So-called image-guided interventions

will increasingly replace 'open' surgery. This will limit the burden on patients, shorten rehabilitation times and reduce involvement of professional medical staff – all important to lower costs significantly.

Jaakko Ollikainen, Nokia presented the home monitoring results of the Care4Me project. Home monitoring will be applied for well people to stay healthy and for people rehabilitating from an operation to stay in close contact with care providers through services on mobile equipment.

To reach the high quality input needed for home monitoring Silvio Bonfiglio, Barco explained how the Chiron project contributes to overcoming healthcare challenges by providing all kinds of sensors to measure physical parameters such as blood pressure and heart rate easily.

Cornel Klein, Siemens presented the results of the AIMES project contributing to the quality of work processes to support medical staff in hospital. One result is to track patients and equipment during their stay in hospital using radio-frequency identification (RFID) technology.

Laure Chotard, Orange presented the Midas project which aids an ageing society and provides solutions to stay independent longer at home. One solution is a care robot after an incident at home. The robot can warn care providers and contact a call centre on behalf of the person in question.

Subsequent discussions focused on how these solutions contribute to general healthcare societal needs. The results were seen as essential steps. Thanks to ITEA 2 and ARTEMIS, the healthcare community within the embedded systems sector can work jointly on means and affordable solutions for a healthy ageing society.



# Focus on Sweden

An interview with VINNOVA  
& Volvo Technology



# Concentrating support on SMEs for future prosperity

The information and communication technology (ICT) sector in Sweden is extremely important, with industry directly involved in the production of goods and services in ICT responsible for around 5% of GDP. More importantly, almost 50% of Swedish exports depend in one form or other on software. Swedish VINNOVA has recently completed a review of its public support for innovation with a move to a more challenge-driven approach. It is also concentrating on the small and medium-sized enterprises (SMEs) which will drive future prosperity as large companies delocalise. EUREKA and the ITEA programme play an important role in Swedish support for direct ICT producers and for many other industry sectors which are becoming increasingly more ICT-dependent.

VINNOVA is the Swedish governmental agency for innovation systems. It is tasked with promoting sustainable growth by investing in needs-driven research and the development of effective innovation systems. "Our annual budget is around €200 million," explains Carl Wickman, director and head of the VINNOVA Services and ICT Division. "This may seem a lot, but it is only about 6% of the total governmental funding for research in Sweden."

The total national R&D budget, including industrial investment, is about 4% of the gross domestic product – a very high figure by European and even global standards. "Only 25% of this comes from government, so VINNOVA's share is very small," he adds. "However it is not only about money. We also make it easier for different actors to meet and work together."

## KEY ENABLING TECHNOLOGY

"The ICT industry plays a very important role as the key enabling technology in our new challenge-driven approach to innovation as the key enabling technology," says Wickman. "Our main ICT player is Ericsson, but a whole ecosystem consisting of SMEs and other companies has developed under Ericsson and in many cases due to it." Many major Swedish companies use ICT as an enabling technology in their products such as the power and automation technologies giant ABB and, in the automotive sector, Volvo and Scania.

Examples of successful Swedish ICT-dependent industry outside the telecommunications sector are the computer gaming industry – for example 'Battlefield 3' – and the rapidly growing smart-phone 'app' industry. On the communications service side, it is TeliaSonera – the result of a 2002 merger between the Swedish

and Finnish telecommunications companies Telia and Sonera – which acts as a driving force. TeliaSonera was the incumbent telecommunications service supplier in Sweden, but today a number of players act in different aspects in service provisioning for ICT.

Sweden was one of the first countries in the world – together with the UK and the USA – to deregulate its telecommunications market. This really triggered a positive evolution for Swedish operators and has been very successful, providing a valuable testing ground for new services and a good preparation for the rest of Europe. In that sense, it started a lot of service industries working around telecommunications services.

## DEPENDENT ON GLOBAL MARKETS

Globalisation has long played a role in Sweden. "Our small home market of some 9 million people has actually been an advantage as our industry has always been very dependent on the global market and this has formed our mentality, how we think about the world," Wickman points out. "Ericsson was already active in China in 1900!"

What is new today is the effect of globalisation on the large companies. "Large companies are no longer growing in Sweden," he says. "Production and to an increasing extent research and development move to where the markets are – India, China, .... This is a long-term problem for us, and SMEs become even more important as that is where growth will be for Sweden. So it is important for VINNOVA to support them and make them even more innovative. By doing this we can also help to create more innovative environments which will build competence that is attractive also for the larger companies."

**ACTING AS A CATALYSER**

VINNOVA has a number of actions in Sweden. It has direct programmes supporting SMEs and especially co-operations with universities and research centres and making them connect. However, Wickman points out: “An important aspect of our work is not just money but to act as a catalyser, arranging meeting places, encouraging networks and providing knowledge about the different possibilities available.”

Sweden has had a lot of large national programmes in the ICT area but the change to a more societal challenge-driven process means thinking about wider perspectives, so it is more difficult to isolate what is specifically ICT. However, Wickman believes strongly in the EUREKA approach as it focuses on industry interests with a clear needs-driven approach to research – and this is particularly true of ITEA.

He also appreciates the EUREKA approach to co-operation: “Unlike the EU Framework Programme, it is not always necessary to form a big consortium. You can do something with just few partners working together – often a much more manageable form and very attractive for smaller companies.”

**CO-FINANCING DOUBLES THE IMPACT**

VINNOVA has a €9 million annual budget for EUREKA, including the EUREKA Clusters and the Eurostars projects; the split depends on applications. All funding involves co-financing with companies – so the budget is effectively doubled.

“We try to put our money into small companies and universities rather than large enterprises which can support themselves if they are really interested in a project,” says Wickman. “We can help them but they have their own resources.”

Wickman also strongly believes that the most important thing for Europe is to increase the involvement on SMEs in projects. “Eurostars and EUREKA are good models for that,” he points out. “Something has to be done in the next Framework Programme to get more small companies involved.”

**MORE INFORMATION:** [www.vinnova.se/en](http://www.vinnova.se/en)

# Software driving automotive industry

Software plays an important role in modern vehicles and is responsible for almost all new functionalities in terms of safety, environmental performance and multimedia entertainment. Swedish-headquartered Volvo is deeply involved in research to speed software development for its commercial vehicles as Daniel Karlsson, research engineer at Volvo Technology in Gothenburg, explains.

Most of the software being used and developed for modern road vehicles is now based on AUTOSAR-compliant architectures. In order to cope with the ever-increasing software complexity and the accompanying safety issues, the EAST-ADL modelling language and the coming ISO 26262 functional safety standard for vehicles are promoted. The advantage of these standards is the possibility of running a mixture of different software components on the same electronic control unit (ECU).

Volvo Technology is involved in the ITEA 2 TIMMO-2-USE project which has been extending the timing framework for EAST-ADL and AUTOSAR in real-time automotive embedded systems. The objective has been to improve co-operation between development teams, shorten development cycles and increase quality while reducing development risks.

This has involved developing a set of use cases that describe important timing problems together with timing-augmented methodologies to provide the required solutions to those problems. A key element has been the development of a data model exchange format, with a formally defined semantics, including the conversion of timing information between different levels of abstraction, taking tool and process automation to a higher level of productivity.

The result should be a 10 to 20% improvement in time-to-market with proper solutions for the management of timing information through all process steps.

**PUBLIC SUPPORT IMPORTANT**

Public support for automotive software development is important for both cost and

prioritisation reasons, according to Karlsson, who is the project co-ordinator for TIMMO-2-USE. ITEA and the EU Framework Programmes both have a role to play in this area. ITEA is very attractive for us in that they focus on software and encouraging standardisation. Which programme to choose when considering where to submit a project proposal is more about finding the best match to an announced call.

Karlsson finds the Swedish public authorities very friendly and helpful. “Our home market is small, so it is quite natural for us to scout the international arena. Funding helps us to establish strategic partnerships both nationally and internationally,” he says. “Industry is in general doing quite well in Sweden,” he believes. “There was a trend at one time to outsourcing manufacture but now we have more automated work chains and have improved our efficiency.”

The real problem lies more in system complexity: “Due to the increasing amount of functionality in vehicles, and also of the software implementing it, Volvo alone cannot develop all parts” he says. One result is that software development is dispersed with much bought in. “This requires careful co-ordination. We use model-based specifications with very accurate qualification of the interfaces.”

Partnerships built up in EUREKA projects are important, especially with SMEs. “Some SME partners are keen on doing good jobs to show what they can offer to big companies such as Volvo,” Karlsson points out. “They can also be more flexible and align their goals to meet our needs.”

**MORE INFORMATION:** [www.timmo-2-use.org](http://www.timmo-2-use.org)

# Ensuring a socially acceptable approach to security



Information and communications technology (ICT) can play an important role in improving security. Key areas include:

- Security of citizens against terrorism and organised crime;
- Security of critical infrastructures such as buildings, railway stations, energy production sites and transmission systems, sensitive manufacturing plants, and ICT networks;
- Border security – particularly illegal immigration, trafficking of drugs, weapons and illicit substances; and
- Restoring security in case of crises – terrorism and crime, natural disasters or major industrial accidents.

All are critical for ensuring the safety of citizens and improving the resilience of infrastructures for industry. However, the implementation of security measures has to be consistent with human dignity, freedom, the rule of law and respect for human rights. The challenge is striking a socially acceptable balance between providing security and adhering to these values as both RECONSURVE and SPY indicate in their different ways.



# Interoperability key to improving maritime surveillance

The ITEA 2 RECONSURVE project is developing an open interoperable maritime surveillance framework with multimodal sensor networks and an automated decision-making and support system to replace current fragmented surveillance systems across the EU. The results will help in the fight against illegal immigration while also speeding search and rescue operations, particularly for small vessels.

## RECONSURVE

ITEA 2 09036



**Cengiz Erbaş**  
Project leader,  
ASELSAN

### Partners

ASELSAN  
CASSIDIAN  
Ecole Navale/IRENav  
EVITECH  
Flying Robots  
GMT Cybernetics  
GREYC  
Institut Télécom/Télécom  
Bretagne/ATOL  
SRDC  
Thales  
Turkish Coast Guard Command

### Countries involved

France  
South Korea  
Turkey

### Project start

January 2011

### Project end

December 2014

### Website

[www.reconsurve.eu](http://www.reconsurve.eu)

### WORKING WITH COAST GUARDS

“We started at the beginning of 2011,” he says. “In the first ten months, we worked closely with the Turkish Coast Guard Command to gather end-user requirements. We appreciate their active support which enabled us to develop an operational and functional view document, including the specification of abnormal behaviours within an area.” This view extended the usual statistical approach with expert knowledge of suspicious vessel criteria of the Turkish Coast Guards.

The ITEA 2 project is not trying to develop yet another surveillance system, but rather creating interfaces between existing systems across domains and borders through an interoperability framework.

RECONSURVE is focusing on border surveillance at sea. The intention is to improve maritime security, in particular reducing the number of illegal immigrants crossing sea borders in small boats, with a cost-effective approach to wide-area surveillance. Currently, such border surveillance is split between a range of different agencies – including coast guards, fishery patrols and border agencies – each with their own systems which again differ from country to country.

All these fragmented systems fail to talk to each other and so a key objective of RECONSURVE is to achieve interoperability. “We are trying to develop interoperability standardisation in this area so that existing systems can share information,” explains project leader Cengiz Erbaş of Turkish defence electronics company ASELSAN. Outcomes will include improved small vessel detection and classification capabilities and cost-effective wide-area surveillance.



Project showcases • RECONSURVE & SPY

This framework will establish a secure cross-domain network to meet the ever increasing requirements to provide a common and recognised picture. Major activities include: integrating unmanned aerial vehicles (UAVs) with surveillance systems; developing situational awareness; interoperability; integration; and validation.

To accomplish all this, RECONSURVE is tackling a number of scientific and technical challenges, such as integrating UAVs and sonar sensor networks to command control. It will also provide semantic interoperability to enable different surveillance systems to co-operate by sharing information.

**SCALABLE SOLUTIONS**

“We have a clear focus on improving sea border surveillance by developing scalable, reliable and cost-effective solutions to identify illegal activities without hindering the flow of legitimate vessel traffic,” says Erbaş. “The use of our results will dramatically improve the effectiveness of maritime surveillance, specifically for monitoring non-reporting vessels, and reduce the costs of deploying such systems.”

Illegal immigration networks have an estimated market of some €4 billion annually. This project will make it more difficult for illegal networks to operate across sea borders, and accordingly will contribute to the fight against such networks. As a consequence, it should be possible to reduce the costs that the European economies incur to deal with illegal immigration.

RECONSURVE will also help perform more successful search and rescue operations by early identification of boats in trouble. This will also reduce the number of boats to be rescued, thanks to project features for early detection of boats.

**TECHNOLOGICAL PROGRESS**

RECONSURVE has already made progress with technological developments, specifically related to image processing, interoperability, command and control. “We specified the system interfaces for sensor data processing and created databases for a virtual two-dimensional (2D) infra-red (IR) image and a real IR image,” explains Erbaş.

A modelling interface for three-dimensional (3D) ship models is also being developed. The first version of the Situational Awareness Ontology based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) was developed, and the first version of the interoperability services were specified. Studies for defining the conditions of testing on validation sites in France and Turkey are in progress.

From a commercial perspective, the surveillance and security market has exploded with an increase of 5 to 10 times compared with the level in 2001. RECONSURVE will help European industry to become more competitive in this sector. Technology development is continuing in all the following areas: UAV software; sensor data processing; developing situational awareness; interoperability; and integration and validation.

**MORE INFORMATION:**

[www.reconsurve.eu](http://www.reconsurve.eu)

# Sharing real-time security information on the move

The ITEA 2 SPY (Surveillance imProved sYstem) project is developing automated wide area intelligent surveillance systems to improve significantly the way information is shared between security control rooms and supplied to mobile operators in the field. A key element is the ability to share greater quantities of richer media such as video with metadata to enable those in the field to have smart situational awareness. The approach makes use of new multi-camera surveillance techniques, new data-integration methods and timely communication of information over mobile and multi-sensor platforms.

“Our overall objective is to improve surveillance systems,” explains project coordinator Eric Munier of French security specialist Cassidian, part of EADS. “The future is broadband as we want to exchange more information – particularly images and video. We can already do this with fixed infrastructure. Our target is to extend this to mobile networks to provide a clearer operational view in the field. However this requires the type of bandwidth that cannot be guaranteed over public networks and would in any case not provide sufficient data security.”

Wireless networks are the focus with professional mobile radio (PMR) offering both quality of service and security. And PMR is encrypted point to point so it cannot be tapped. Current PMR solutions are mainly voice based as bandwidth limits data exchange. SPY is working on new approaches to share video with cars, helicopters and individuals. The proof of concept will be in cars.

Current fixed systems require thousands of people to monitor thousands of images. ‘Events’ must be

identified automatically. This is even more difficult with mobile cameras with most current application involving only proof of an incident after the event.

**REAL-TIME COVERAGE**

The demand now is for real-time coverage for action to be taken to tackle and contain incidents. This requires lots of bandwidth. It is possible already to handle signals from four or five vehicles but there is still a need to optimise bandwidth with new types of compression. “We know how but are looking at new ways for mobile video storage and only uploading when necessary as bandwidth is critical, particularly here in Europe,” adds Munier.

There is also an issue in terms of security as even if the network itself is secure, the same level of security is required in the mobile unit and in the control room to enable video images to be used as evidence. “We are also working on a ‘watermarking’ solution for alteration detection and security encryption as well as security of people,” he says.

“We are not attempting to replace policemen but rather to help them,” insists Munier. Use cases include facial recognition to identify individuals and algorithms to spot incidents such as fights with all necessary



**Partners**

ACIC  
 ARC Informatique  
 ASELSAN  
 C2Tech  
 Cassidian  
 CogVis Software and Consulting  
 ENSTA-ParisTech  
 Institute of Fundamental Electronics  
 Institut TELECOM  
 Kilosoft  
 EOLANE

MIRASYS

Multitel  
 Pôle Pilote de Sécurité Locale  
 Roger-GPS  
 VTT Technical Research Centre of Finland

**Countries involved**

Austria  
 Belgium  
 Finland  
 France  
 Turkey

**Project start**

January 2011

**Project end**

December 2013

**Website**

[www.itea-2-spy.org](http://www.itea-2-spy.org)

**SPY**

ITEA 2 09025



**Eric Munier**  
 Project leader,  
 Cassidian

data fusion. Applications include video surveillance units which can be deployed quickly in the field to tackle, for example, drug trafficking or terrorism – such surveillance units are not operating on the move but rather being moved to where they are required.

Event detection is not easy and it is necessary to consider how an event can be described, requiring suitable ontology for example to identify a ‘fight’. This is made more difficult in a truly mobile situation as the context is changing continually – it is much easier with a fixed camera.

**ADAPTIVE VIDEO STREAMS**

Short-term advances have already been made with compressed video streams for sharing between mobile and fixed units. Adaptive coding is now needed to deal with the variations of the quality of service provided by the wireless network and to eliminate a lot irrelevant information – for example if monitoring a vehicle, it is not necessary to retain the road details.

Smart adaptive cameras – conventional or thermal – are also being developed that are robust and easily reconfigurable to a specific application. They need to be reconfigurable as it is not possible to embed everything in a small unit.

All this also opens up the debate on the use of distributed intelligence. Just where should the intelligence be located – in the control room or in the mobile unit? This depends on the application but real-time control ideally requires intelligence in the mobile unit – however it is of course possible to swop around the elements involved. “We are still discussing where to put the database as the problem with the mobile unit is security,” says Munier.

There are also legal issues with video surveillance. Video imaging is still not legal in many countries. It is currently very difficult to use video in evidence, countries have different points of view on privacy, especially on the use of data images. “We may have to take some action on the information in a video to protect privacy,” he points out. “For example, we may need to blur faces and remove private zones such as gardens.” SPY is working with public safety agencies on this.

Mobile units are of course not working in isolation. A typical used case could be trying to capture a terrorist. A patrol car could automatically detect someone and then interact with fixed surveillance video cameras as well to obtain extra information and to track them.

**HUGE COMMERCIAL IMPACT**

The commercial impact of new PMR solutions is expected to be huge as this is a big and well identified

market. The project partners have clearly focused ambitions. These range from new supervisory control and data acquisition (SCADA) solutions for system overviews including energy management and new camera systems for defence surveillance to improved video surveillance recording systems with metadata.

SPY has identified more than 50 possible use cases – mainly police oriented but with interest from fire brigades in overview of incidents. And submission has been made to MPEG for a use case, hopefully including robust watermarking for legal admissibility. Legal analyses are underway. The first system architecture has been defined despite problems with interfacing and protocols have been developed for surveillance data.

**MORE INFORMATION:**

[www.itea-2-spy.org](http://www.itea-2-spy.org)





Madrid  
1 & 2  
February

# ITEA2 Project Outline Preparation Days 2012

Contributing research excellence and innovation to  
Europe's competitive Software-Intensive Systems  
and Services

# Opening of ITEA 2 Call 7: 1 February 2012

The PO Preparation Days: Come and join us and start preparing for the new Call!

ITEA 2 will open its seventh Call for projects on 1 February 2012. To help you start preparing a Project Outline (PO), to brainstorm new project ideas, locate potential partners and consortia, and find out more about the specifics of the Call, we are organising our PO Preparation Days on 1 and 2 February 2012 in Madrid, Spain.

As a EUREKA Cluster programme, our approach is intergovernmental, bottom-up, industry-driven and all EUREKA member countries can provide financial support to ITEA 2 projects. Participation is welcome from large industrial companies and small and medium-sized enterprises (SMEs), as well as research institutes and universities. Projects must involve at least two organisations in two different countries under the EUREKA rules.

Calls for projects involve a two-step process with continuous involvement of relevant national funding authorities. The first step involves submission of POs. For those outlines approved, the second step is to submit a Full Project Proposal (FPPs). These FPPs are evaluated and, if approved, given the EUREKA-endorsed ITEA 2 label. Project participants can then apply for funding in their own countries.

If you plan to participate in this seventh Call, now is the time to visit our website, explore what is going on, start defining your project ideas, look for potential consortium partners and investigate local funding possibilities.

## ITEA 2 PROJECT OUTLINE PREPARATION DAYS 2012

These days are organised to help you prepare for this seventh Call. Participation is free of charge and open to all those with an interest in the Call.

The aim of this meeting is to help organisations form consortia and generate preliminary outlines for projects by bringing together interested companies, research institutes and universities with innovative ideas for projects in ITEA 2.

In short, this meeting will enable you to:

- Receive general information about ITEA 2 and the project call process;
- Present your idea in a poster session and an elevator pitch;
- Discuss and brainstorm project ideas in workgroup sessions; and
- Contact other interested parties/potential partners from all over Europe.

If you are interested in participating in this two-day event, please go to our website and fill-in the online registration form – [www.itea2.org/podays\\_2012](http://www.itea2.org/podays_2012)

Innovation Reports

**GEODES**

(ITEA 2 ~ 07013)

Improving power efficiency in mobile devices and communicating networks

**OSAMI-COMMONS**

(ITEA 2 ~ 07019)

Open ecosystem platform makes possible the next generation of innovative software-intensive systems

**PRISMA**

(ITEA 2 ~ 07024)

Improving productivity for globally distributed software systems development

**GEODES**

(ITEA 2 – 07013)

Florian Broekaert and Agnes Fritsch, Thales  
France

# Improving power efficiency in mobile devices and communicating networks

The ITEA 2 GEODES project addressed power-consumption issues in complex distributed communications systems – such as handheld devices, smart phones, personal digital assistants and wireless sensor networks – from a global and coherent point of view, covering both internal nodes in a device and the network environment in which it has to function. The results are already being applied in several areas, including TV set-top boxes and video-surveillance systems, while the power-management strategy developed has been summarised in a freely available two-part handbook.

Today's mobile embedded devices offer ever more functionalities with ever greater connectivity as illustrated by advanced UMTS 3G mobile phones and personal digital assistants (PDAs). These devices now commonly integrate camera sensors for video and photo applications, while WiFi or Bluetooth wireless facilities are used to browse the web.

Such mobile devices are hugely dependent on their ability to manage limited battery capacities to reach reasonable individual autonomy. As a result of increasing complexity, power optimisation is no longer confined to the device itself but also needs to take into account its environment through the networks it accesses. The challenge is similar in large sensor networks, involving groups of communicating

hardware/software nodes with heterogeneous capabilities – central processing unit, memory, etc.

**MINIMISING ENERGY CONSUMPTIONS**

GEODES focused on the requirement to minimise the energy consumption of future products for two reasons.

1. *Consumer awareness* of the need to focus on energy use for environmental reasons – driving product suppliers to invest in innovation which has a longer term impact on product efficiency, even if the unit cost is increased; and
2. *Device autonomy* which requires products to use less energy despite embedded devices now implementing many functions and with feature set an important selling point.

To fulfil the ever-rising need for new functionalities, new architectures offering more hardware power are required – including multi-cores and graphics processing units. However, while new hardware architectures are barely able to meet the performance demands, battery technology is clearly not evolving fast enough to address the energy problem. Thus, energy efficiency is becoming a differentiation factor and is motivating the design of low power embedded systems.

The interest in energy management is growing to cut power consumption, maximise battery life and decrease thermal dissipation. In addition, power management can have indirect impacts and valuable benefits to improve product characteristics. Indeed, working on energy-

efficient systems might help in designing lightweight systems and increasing component lifetimes.

Mobile devices are hugely dependent on their capability to manage limited battery capacities to achieve reasonable autonomy. With the variety of networking functionalities now available, power optimisation is no longer confined to the device itself, but should also embrace the network environment.

Applications which can take advantage of, or even become possible due to, lower power consumption include tele-healthcare and biomonitors. These applications process data from wearable or portable platforms such as heart-rate monitors, activity sensors and glucose monitors. As these sensors and platforms should be wearable or portable, power consumption is critical. The ratio between available energy resources and consumed energy determines the limitations of the applications that can be deployed.

The slow evolution of battery technology has put the autonomy of embedded devices under pressure. In recent years, embedded processors have gone through an amazing evolution, illustrating the need for even better battery performance. Many attempts have been made to help reduce the growing gap; the most common technique is based on tailoring power consumption to performance.

#### OVERCOMING THE POWER/PERFORMANCE GAP

GEODES investigated a series of mechanisms for reducing power consumption of mobile devices, focusing on two specifically: those operating on the level of the individual nodes such as stand-by mechanisms, where nodes are switched to a standby mode to reduce their energy consumption; and those operating on the network level, such as transmit power control, where correct power levels need to be assigned to nodes in such a way that total power consumption is minimised but the whole network stays connected.

Project results will help overcome the power/performance gap for next generation communicating devices. Applying systems/software awareness to power issues is the key to bridge opposing evolution towards greater performance requirements and longer device autonomy. Coupling this awareness with a well balanced offline/inline power optimisation can bring major energy savings and eventually be considered itself as an enabling technology.

Major innovations in GEODES included:

- Power-aware protocols and applications;
- Power-aware components at operating-system level – new schedulers, new file system algorithms for



data storage, new graphics drivers, quality of service (QoS) managers and power-monitoring facilities;

- Energy-efficient techniques for the network – new MAC algorithms, new routing algorithms, dynamic power transmission and dynamic node power adaptation to transmission rate;
- Middleware for QoS handling and node interoperability; and
- SystemC simulator for power estimation.

There is a massive potential for energy-efficient wireless-sensor networks (WSNs) and embedded systems. But seeing embedded systems as part of a more global picture could make market impact even broader. This is the vision of the Internet of Things (IoT) with machine-to-machine (M2M) connections. Indeed, WSNs and embedded systems can enrich the capabilities of M2M IoT systems such as: smart metering, smart grid and environmental monitoring; co-operative vehicle and transport infrastructures; and pay-as-you-drive car insurance.

Techniques developed in GEODES can help facilitate the deployment of M2M IoT systems featuring autonomy with efficient energy management and communications solutions for long-lasting operation. They also make possible advanced sensor- and actuator-based systems for safety and security, integrating networking capabilities and operating in harsh environments.

Markets where GEODES techniques can be applied include: wireless M2M connectivity through SIM-equipped devices; protection of critical infrastructure such as perimeter protection of oil pumping stations;

environmental monitoring and fire-fighter protection; and airport protection with vast IP-based video surveillance networks.

#### OUTCOMES ALREADY BEING EXPLOITED

GEODES has achieved its goals and more with results and outcomes that have been measured and implemented. The power-management strategy has been summarised in a two-part public power-saving handbook written by the project and available for free consultation (<http://geodes.ict.tuwien.ac.at/PowerSavingHandbook>).

The approach developed is already being applied internally by project partners both to improve the autonomy of existing devices and as part of the design approach for new products. Key outcomes include orders-of-magnitude energy savings and lifetime extensions verified on multiple prototype demonstrators across diverse application domains.

Specific results include:

- Almost doubling of the autonomy of video-surveillance applications;
- A 100% extension in WSN lifetime, depending on size, structure and latency; and
- Up to 11% total energy consumption reduction for TV set-top boxes – in a 10 million product market, this would save some 62 GW of power a year. The environmental benefit is also helping to differentiate products in a mature market where all devices offer effectively the same set of functions.

#### MORE INFORMATION:

<http://geodes.ict.tuwien.ac.at>

**OSAmI-Commons**

(ITEA 2 07019)

Jesus Bermejo, Telvent  
Spain

# Open ecosystem platform makes possible the next generation of innovative software-intensive systems

The ITEA 2 OSAmI-Commons project has developed a universal networking platform enabling reuse of software components across vertical application domains. This is crucial when tackling urgent societal challenges such as energy sustainability or the ever-growing care costs for an aging population. This software ecosystem will help address such problems efficiently by increasing the level of innovation and allowing development of more complex solutions and applications with less effort. The open modular platform can be used across many sectors and has been trialled and exploited for applications in ambient assisted living, energy-sustainable homes, telematics-based city services, smart homes, software development tools and edutainment.

A major challenge faces the software-intensive systems industry as a result of the disruptive transition caused by the Internet. The relationship between humans, computers and electronic devices has evolved rapidly. From one computer to many users in the enterprise domain during the 1960s, this moved to the family environment with the launch of personal computers in the 1980s. The mobile phone established a more personal 'one-to-one' connection ten years later.

The move now is to a one user to many devices relationship with phone complements, WiFi routers, gaming consoles, MP3 players, set-top boxes, digital TVs and infrastructures with impressive computing and storage capabilities. A new concept of global and transversal platforms is emerging to exploit the real potential of networking and affecting all business areas.

**DYNAMIC SERVICE-ORIENTED PLATFORM**

OSAmI-Commons targeted open-source common foundations for a dynamic service-oriented platform able to personalise itself in a wide range of co-operating software-intensive systems. The resulting platform makes easy what was difficult by seamlessly facilitating:

- Service retrieval from external centralised or distributed data repositories;
- Connection and exchange of information and services between devices; and
- Linking up various vertical markets to make possible new business solutions.

It was the expected acceleration of the already fast convergence pushed by open source and service-oriented architecture (SOA) that motivated OSAmI-Commons. The open-source approach encourages software reuse with a process which leads to increased code quality and security, speed of patch distribution, decreasing vendor lock-in, reduced cost of acquisition, increased customisability and a developer status closely linked to skills leading to an increase in productivity.

The motivation of the industrial members in the consortium was strongly linked to the technologies addressed and the business potential of a component-oriented architecture in combination with the open-source approach. Such industries have to compete in a context in which software is becoming increasingly important. Research and academic partners were interested in the technology but also in supporting these industries.

Project member benefits, by extension, are also relevant at a European level and obviously for consumers, since project members have tested and are already offering the first modules for applications and innovative business solutions in various markets.

**DOMAIN-INDEPENDENT ASSETS ON A COMMON PLATFORM**

Open software business models entail significant challenges for the industry because of the various intellectual property licensing programmes and proprietary solutions. This resulted in discussions to allow partners to build solutions in a context in which both open-source and proprietary developments could co-exist.

For better co-ordination, the project was organised in national clusters, each focusing on a specific domain. The vertical sectors contributed domain-independent assets to a common platform. In addition, a new demonstrator involving services from different domains and countries was defined to improve co-operation and transversal synergies and to prove the feasibility.

This approach facilitated the short-term exploitation of results and also made it possible to build the foundations for a transversal platform that can be used across many industries.

OSAmI-Commons led to the development of an ecosystem platform. This enables actors to share development efforts in areas where applications and software components can be used in various solutions as well as across industries. Such a platform also supports commercialisation of the results from research and academic partners that would not normally reach the market owing to lack of networks and other barriers.

The ecosystem platform makes possible new business solutions by offering an open-source-based platform for the exchange and re-use of applications and software components. This platform has now been tested and can already offer the first modules for use in building applications in various industries. Methodologies developed include an approach to how such software modules have to be developed as well as policy recommendations on how to benefit and further foster this ecosystem.

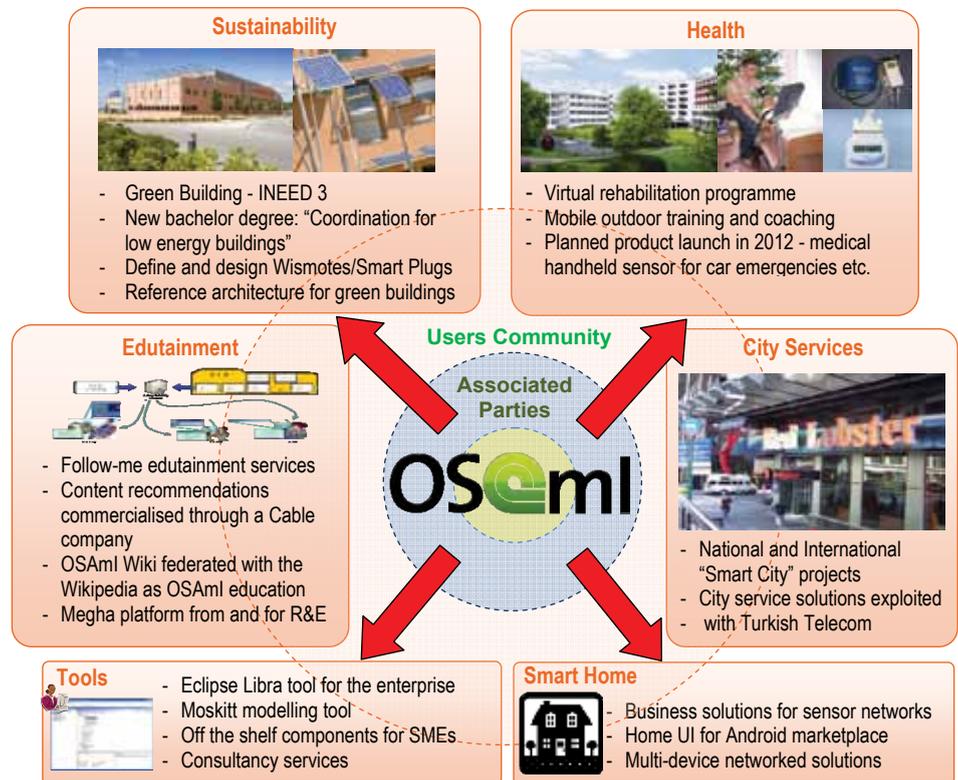
The ITEA 2 project has contributed results on web services for devices to several standards such as OASIS WS-DD; IETF 6LowPAN- Coap and OSGi Alliance. The solutions developed as part of the different subprojects are being used for telemedicine, sustainable buildings, telematics, smart homes, software development tools and edutainment. They include new products and business solutions that will be launched commercially.

#### SHORT AND LONG-TERM EXPLOITATION

The OSAmI-Commons approach combines short-term exploitation with mid- to long-term objectives. A spin-off to exploit results in Zigbee sensor networks was set-up during the project. This is already involved in the launch of new products.

In the context of green building, the monitoring infrastructure has been incorporated in the INEED series which provides reference architecture for the next generation of sustainable buildings. In addition, a degree programme has been launched on co-ordination for low energy buildings.

The first products in the health domain will be launched in 2012/13. They include a new medical handheld sensor as well as a rehabilitation programme for cardiology patients with the potential for saving many lives. This programme enables heart-attack patients to continue training on an exercise machine at home after rehabilitation, connected to the doctor online. The doctor can not only monitor the training and a patient's vital signs, but also control exercise-machine settings online.



Other outcomes include telematics services and smart home solutions. Content recommendations from the edutainment demonstrator are being used in a cable company. Service solutions for existing intelligent city systems are being exploited with Sompas and Turkish Telekom. Additional tools such as the Eclipse Libra Platform are ready for commercialisation in the business market.

OSAmI Commons project results will also be used in other research projects such as the ambient assisted living project universAAL, by the Ambient Assisted Living Open Association (AALOA), and by the Megha-Intercloud cloud computing initiative from the Research and Education domain. Moreover, Thingtrack – a recently established innovative SME in Spain – is keen to adopt the platform for its current commercial developments in the web applications field. This demonstrates the business relevance of OSAmI beyond the project partners and will contribute to external validation and commercial exploitation of the project results.

#### STRENGTHENING EUROPE'S POSITION

The most important potential of the open, modular and transversal approach in OSAmI-Commons is in stimulating innovation. This is demonstrated by the

further use of project results in business solutions as well as other on-going research projects. As a result of the increasing dependency of innovation on software, OSAmI-Commons building blocks, including the component-oriented ecosystem platform and first open-source software modules, can support Europe's position and competitiveness in the global market. This will have an impact on leadership, employment and the European economy.

The open-source based ecosystems platform and its software modules will also be used to increase innovation and strengthen Europe's position in tackling societal challenges. Building blocks can be further exploited by the partners and external companies. The platform can also be a rich niche for SMEs to start their own businesses as it makes it possible to reduce initial investments.

#### MORE INFORMATION:

[www.osami-commons.org](http://www.osami-commons.org)

**OSAmI**



**PRISMA**

(ITEA 2 07024)

Paivi Parviainen, VTT  
Finland

# Improving productivity for globally distributed software systems development

The ITEA 2 PRISMA project has developed a Wiki offering an extensive web-based catalogue of good practices and a software workbench tool supporting shared methodology to improve the quality, productivity and effectiveness of globally distributed software-based systems development. Project partners have already demonstrated faster development with lower costs and a marked reduction in the number of bugs found during development. The SameRoomSpirit Wiki was made publicly available in September 2011.

Key to PRISMA was the need to make globally distributed systems development (GSD) better with the growth of outsourcing, subcontracting, distributed working, multi-site development and joint ventures. Improvements were foreseen in methods, practices, tools and tool integration to make collaborative development more effective and efficient by, for example, improving transparency to partners' work, better consistency and synchronisation of engineering tasks, and reducing overheads resulting from distance and time differences. The target was to achieve the 'same room' spirit in a multi-site fashion.

**FACT OF INDUSTRIAL LIFE**

Collaborative engineering of software-intensive systems has become a fact of industrial life. Some 81% of software developers interact with colleagues from different sites, while 87% spend some of their time working with external partners. And the global economic slowdown has caused re-evaluation of contracts to improve efficiency and costs.

Cheaper labour is not the only reason for collaboration; others include the ability to capitalise on the global resource pool to access scarce resources successfully and cost competitively, wherever located. This is particular necessary when certain competences are not available in-house or when there is a desire to focus in-house resources on core competences and enabling specialisation in selected functionalities or skills. There

are also the business advantages of proximity to the market with knowledge of customers and local conditions, and the good will created by local investment.

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. Cloud computing will have high impact on GSD trends. PRISMA addresses several cloud-computing drivers and restraints, including: elimination of complexities resulting from managing and integrating multiple applications and vendors; geographical dispersion; and vendor lock-in.

**MARKED EFFECT ON PRODUCTIVITY**

However, development technologies are insufficiently prepared for different collaboration situations. Productivity in GSD project can drop by up to 50%, with rework two to five times greater than for a co-located project. A team separated by as little as 100 m can have communications reduced by as much as 95%.

Philips' experience on embedded software development indicates that productivity drops by a factor of two to three when the number of sites involved 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 the

level of sophistication that would increase productivity in collaborative product creation.

PRISMA's key objectives were to boost the productivity of collaborative systems' development by enhancing and supporting asset improvements – including methods, practices and techniques – and enabling and improving tool interoperability.

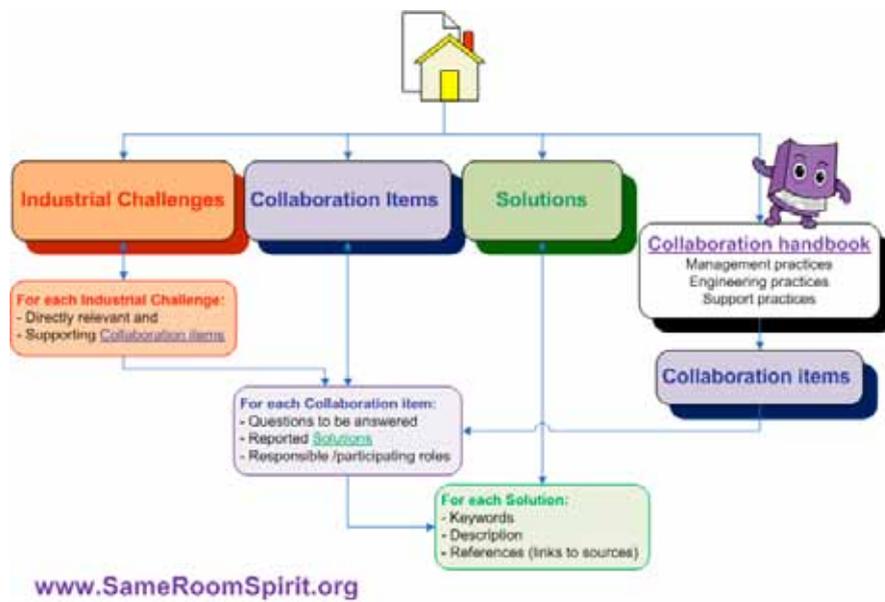
The ITEA 2 project concentrated on two areas:

1. *SameRoomSpirit Wiki* – with the development of practical solutions to meet the industrial challenges of GSD; and
2. *PRISMA software workbench (PSW)* to enhance awareness and synchronisation of assets in GSD by enabling interoperability of various software development tools in collaborative settings. This allowed for a configurable set of development tools, tailored to individual partner or project needs.

**USER-FRIENDLY WEB-BASED APPROACH**

The SameRoomSpirit Wiki set out to improve collaborative software development by providing sound industrial solutions to typical distributed 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.

Industry identifies its problems in GSD in different way from literature. Moreover, finding solutions



from literature is difficult, as different terminology is used. The SameRoomSpirit Wiki has gathered GSD knowledge in one place where terminology familiar to industry can be used. The Wiki was developed using Mediawiki software with the first version based on the ITEA MERLIN project collaboration handbook which covers management, engineering and support practices.

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

Solutions can be found based on industrial challenges, by browsing collaboration items or by using the search functionality provided. The industrial challenges are collected from companies carrying out distributed product development. Challenges are categorised according to various collaboration and engineering topics. Collaboration items are related to industrial challenges and are categorised according to typical practices in software development. Solutions are possible answers to collaboration items, categorised according to which topic they relate.

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 Symbio and ABB with promising results.

#### WORKBENCH AMALGAMATES RESULTS

The objective of the PSW was to amalgamate the results from the many different kinds of tools found in GSD environments. In such activities, it is easy to lose track of what is happening with scattered tools, with no single tool providing an overall picture.

PRISMA set out to connect the tools and manage the connections efficiently with the PSW. A flexible tool integration solution offers many benefits as companies already have defined practices which work well and have selected tools supporting their way of working. Making use of the bundle of tools offered by most existing integrated tool packages risks change which can be costly. Moreover, it is always better to keep proven solutions for parts of the problem.



The PSW offers a way to integrate distributed data and tools, building on the experience of the ITEA MERLIN and TWINS projects tool chains. The PSW makes integration feasible in various situations by providing real-time views of data, enabling use of legacy tools – such as defect, test and version management tools – and offering distributed/multi-site support.

It supports GSD development by:

- Enhancing awareness of important project events;
- Managing and inspecting relationships between work products developed in different settings, so ensuring full traceability;
- Making data available to all partners so that they can inspect the work products;
- Offering shared workspace in terms of voice, video and desktop views; and
- Simplifying project management reporting.

#### EXTENSIBLE TOOL INTEGRATION FRAMEWORK

Overall, PRISMA demonstrated an extensible, modifiable tool-integration framework for globally distributed software development with companies able to benefit from the PSW without major changes to their tool infrastructure.

Quantified achievements included:

- Time wasted on projects reduced from 19% to 10.5% by partner ABB;
- Overconsumption of human resources reduced from 80% to 25% by Symbio;
- Reduction in the duration of requirements analysis from around 50 days to around 10 days by Nokia Systems Networks – together with the ability to build an open source-based tool integration platform almost without licences, resulting in significant costs savings; and
- A 60% cut in the number of bugs found during development by CBT.

Exploitation of the main results is already starting with the SameRoomSpirit Wiki made publically available on 15 September 2011 ([www.sameroomspirit.org](http://www.sameroomspirit.org)). Consultation packages are also available from VTT, Innovalia Association and others on GSD challenges and their solutions. The PSW tool has become standard within Symbio – an SME which has grown tenfold in the past year – and which plans to use it further in the communications with its clients.

**MORE INFORMATION:**  
[www.prisma-itea.org](http://www.prisma-itea.org)

CALENDAR

1-2 FEBRUARY  
**ITEA 2 PROJECT OUTLINE  
PREPARATION DAYS 2012 –  
OPENING CALL 7**

MADRID, SPAIN



During this event you will be able to brainstorm on new project ideas, start working on a Project Outline, locate potential partners, join existing consortia and find out more about the specifics of the ITEA 2 Call 7.

Register now! [www.itea2.org/podays\\_2012](http://www.itea2.org/podays_2012)

17-18 JANUARY  
**ARTEMIS BROKERAGE EVENT  
FOR CALL 2012**

PRAGUE, CZECH REPUBLIC

In March 2012 ARTEMIS JU is expected to launch its Call 2012 for project proposals. To help with the preparation of drafting proposals and search for the right consortium partners, ARTEMIS-IA organises the ARTEMIS Brokerage Event.

[www.artemis-ia.eu](http://www.artemis-ia.eu)

1-3 FEBRUARY  
**ERTS2 2012**

TOULOUSE, FRANCE

The ERTS<sup>2</sup> congress is a European cross sector event on Embedded Software and Systems, a platform for top-level scientists

with representatives from universities, research centers and industries.

[www.erts2012.org](http://www.erts2012.org)

1-4 FEBRUARY  
**HEALTHINF 2012 –  
INTERNATIONAL CONFERENCE  
ON HEALTH INFORMATICS**

VILAMOURA, PORTUGAL

The event brings together researchers and practitioners interested in the application of ICT to healthcare and medicine in general and to the specialised support to persons with special needs in particular.

A paper resulted from the MEDIATE project will be presented.

[www.healthinf.biostec.org](http://www.healthinf.biostec.org)

22-23 FEBRUARY  
**CELTIC-PLUS EVENT 2012**

STOCKHOLM, SWEDEN

The focus will be on the new challenges for the telecommunications world and the competitiveness of Europe's telecommunications industry towards a Smart Connected World.

[www.celtic-initiative.org](http://www.celtic-initiative.org)

6-10 MARCH  
**CEBIT 2012**

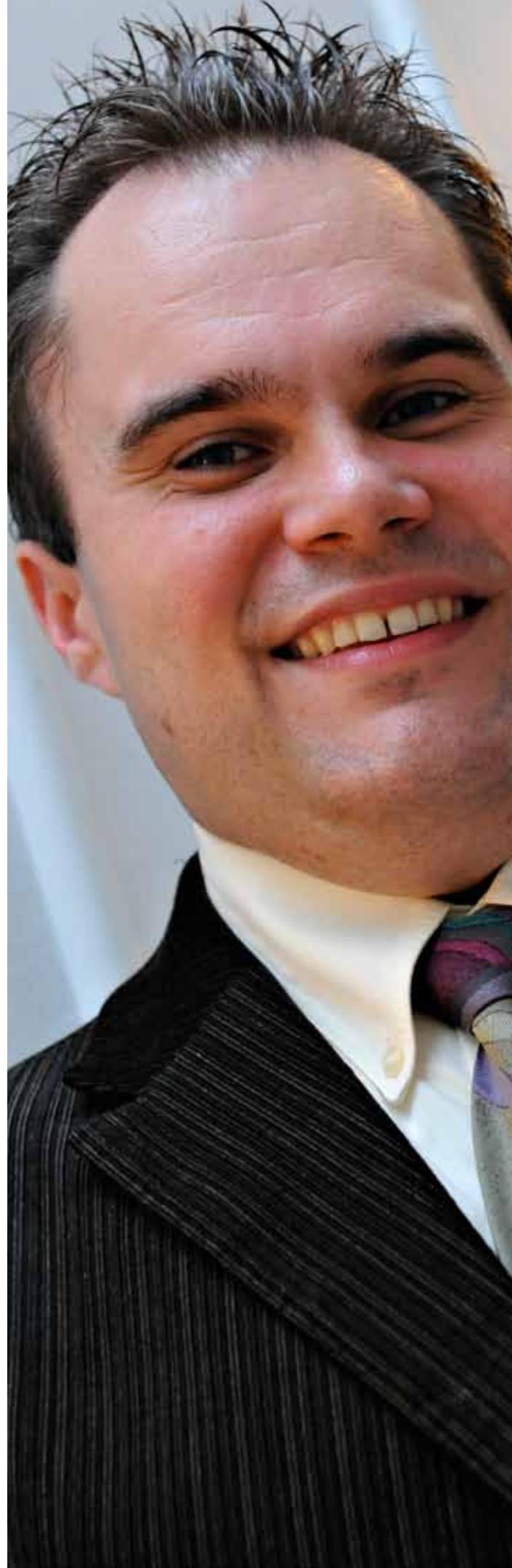
HANNOVER, GERMANY

[www.cebit.de](http://www.cebit.de)

23-27 APRIL  
**HANNOVER MESSE 2012**

HANNOVER, GERMANY

[www.hannovermesse.de](http://www.hannovermesse.de)



# Enthusiasm for aviation drives software career

Telecommunications engineer Andy De Mets has turned an early enthusiasm for aviation into the basis for a long-term career in software research coordination. Work on avionics displays in the UK and back home in Belgium has provided a solid basis both within his company Barco and with the ITEA steering group that helps evaluate project proposals.

Andy De Mets is the coordinator for national and international research projects at Belgium-based visualisation solution giant Barco. Barco is one of the founding fathers of ITEA and De Mets is the ITEA2 Steering Group Representative for his company.

He came to software through hardware – and through his keenness for aviation. After graduating in telecommunications electronics in Belgium, he spent six months in the UK at Bournemouth-Hurn airport with in-flight entertainment systems specialist Airborne Display Ltd. Here he was mainly involved in the testing of new systems. This work experience was organised through the EU Leonardo da Vinci Programme which funds practical projects in the field of vocational education and training.

On his return to Belgium, Andy was contacted by Barco and in short order joined its avionics division as a technical writer, preparing technical documentation for internal and customer projects.

Barco has built up an enviable expertise in the development of professional display products for multiple markets, among which defence, aerospace, healthcare, control rooms, simulation, and digital cinema. The company is heavily involved in the avionics area with different types of cockpit displays. The company is active in more than 90 countries with about 3,500 employees worldwide.

"I did not want to design things myself but like to have an overview," explains De Mets. "This job helped me to get to know the company very well." As a result he was asked to become involved in the project co-ordination of research projects, first at an avionics divisional level, and since a few years at a corporate level. As part of the job, there was a need for a technical background but not necessarily in software.

Andy however does find software appealing as more and more products become software based and software is increasingly driving innovation. ITEA software developments are going into products and methodologies. "With more than 12 years experience I'm now a novice in software in a range of domains," he laughs.

Responsible for the coordination of research projects for the different Barco divisions and business groups, he has built up a broad experience in all aspects of financial, legal, funding and project management relevant to research projects and intellectual property. He has also established good links with institutes and research programs such as IWT (Belgium), the EU Framework Programme and ITEA.

Barco is heavily involved in both the EU Framework Programme and EUREKA – including the Celtic, Catrene and ITEA Clusters and direct EUREKA projects. "We do lots of bottom-up work in ITEA but the Framework Programme is more long term," he says. "The Framework Programme sets out the problem while ITEA fills it in!"

De Mets strongly believes in collaborative projects. "20 years ago it was possible to go at it alone, while now you need a lot of stakeholders both within a company and outside. It is also interesting in terms of knowledge transfer from academics and research organisations which is facilitated in both ITEA and the Framework Programme. New technology and techniques have to come from research centres."

He also believes that collaboration is important for small countries. "We have good companies – large enterprises and SMEs – and research centres here in Belgium but we must look across borders for markets."

"We're lucky here as our public authorities support us at a high level," he adds. "We also have a good educational system with universities and technical high schools."

Andy himself studied at the Ostend industrial science and technology department of the KHBO university college. He is also interested in languages and in presenting to customers. Outside work he is keen on travelling, preferably off the beaten track. He recently spent time in Cuba and regularly visits cities around Europe.

EUREKA News



## EUREKA at the European Innovation Summit 2011

Brussels / Warsaw, 10-13 October



As last year, EUREKA was represented at the third edition of the European Innovation Summit (EIS). This year, the Summit took place from 10 to 13 October in two locations: the European Parliament in Brussels and Warsaw, Poland as one of four flagship Polish Presidency events.

On 11 October, Chairman of EUREKA Cluster CELTIC José Jiménez participated in the Brussels session on 'Future Internet PPP', while Monica Kavaliauske of JSC Biocentras – EUREKA Innovation Prize Winner – took part in the session on 'Role Models on Science & Technology Careers'. EUREKA High Level Group Chairman Sándor Erdő was a speaker in the Brussels session on 'The Future of Innovation in Europe', on 12 October.

ITEA 2 joined EUREKA at the exhibition in the European Parliament in Brussels. A representative of the Belgian SME Acapela was also present during the event, demonstrating how speech synthesis works in conveying more meaning and emotions to speech solutions. Acapela is partner in the ITEA 2 DiYSE project and the Eurostars projects BioSpeak and Emo-Speech.

## Co-summit 2011: two-fold role for EUREKA

Helsinki, 25&26 October

During the ITEA & ARTEMIS Co-summit 2011, ITEA was honoured to welcome Sándor Erdő, EUREKA High Level Group Chairman of this year's Hungarian Chairmanship and to continue the tradition of having a joint ITEA 2-EUREKA stand in the well-visited project exhibition.



Sándor Erdő participated in the Cross-border co-operation for clean technologies plenary panel session. "We believe that leading strategic discussions, identifying co-operation areas of common interest and setting framework objectives for future co-operation as well as joint funding can add a lot of value in the impact of ICT technologies across countries and technological sectors," highlighted Mr Erdő.

During the closing session on the second day of the Co-summit, Mr Erdő together with ITEA 2 Vice-Chairman Philippe Letellier, handed over this year's ITEA Achievement Awards.

