

ITEA 2

M

Magazine

SEPTEMBER 2012 • NO. 13



Sharing a vision for ICT innovation

Co-summit 2012 in Paris

Pushing the boundaries for
international succes

Focus on The Netherlands

Open-source

Key to tool platform flexibility

OPEES and AMALTHEA



ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

European leadership in Software-intensive Systems
and Services – www.itea2.org

ITEA 2 is a EUREKA strategic ICT Cluster programme

Content

EDITORIAL
3

Fopke Klok

ITEA 3
4

Labelling & position paper

INTERVIEW
8

Focus on The Netherlands

EVENT PREVIEW
11

Co-summit 2012

PROJECT SHOWCASES
14

OPEES & AMALTHEA

WHO IS WHO
19

Eloy Gonzalez Ortega

NEWS
20

ITEA 2 news

CALENDAR
21

Upcoming events

INNOVATION REPORTS
22

DiYSE

EUREKA NEWS
24

Chairmanship events

Colophon



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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Submissions: The ITEA 2 Office is interested in receiving news or events linked to the ITEA 2 programme, its projects or in general: R&D in the Software-intensive Systems and Services field. Please submit your information to communications@itea2.org.

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

The 20th of June 2012 was a landmark date for ITEA: the EUREKA High Level Group granted the EUREKA label to ITEA 3. This decision was based on a clear and ambitious implementation plan and strong support from the public authorities. It was also a clear recognition for what has been achieved in ITEA and ITEA 2 so far, and for all the preparations for ITEA 3 made in the office with support from our industry members and public authorities. The opening article of this issue addresses this important highlight.

With the key decision for ITEA 3 having been taken, we are enthusiastic to start implementing all the changes and this summer the office buzz has centred on the living roadmap and the introduction of a quality management system.

We are preparing a demonstration of the Living Roadmap for a session at the Co-summit in Paris at the end of October. The idea behind this roadmap is to use the many results of ITEA projects – in particular the high-quality state-of-the-art descriptions – on which new innovations can be built. Access to the projects and the resulting documents is facilitated by a structure composed of a set of high-level challenges. This part of our community website should also allow access to the contents of other programmes, in particular ARTEMIS, and enable the project consortia to build on what is there as well as support the evaluations and reviews by positioning a project in relation to relevant work. This living roadmap will replace the existing ITEA roadmap, which had a four-year cycle.

A second element of ITEA 3 will be a new quality management process. While ITEA 3 has a EUREKA label, which is valid up to the end of 2021, the world and the environment of ITEA 3 is in a state of continuous change. Therefore, ITEA 3 will have to

be an adaptive programme. The best way to manage that is to have an annual process in which the key priorities can be identified and agreed with all stakeholders. At present, one of the main priorities for ITEA is, of course, to shorten the time between idea and project start. Public authority support and an adapted call calendar could help to reduce this time to 10 months. The December issue of this magazine will contain more on this adapted calendar.

In addition to all these new developments, of course, operations continue to run as normal. The 2012 Co-summit is approaching and we look forward to a great exhibition and an inspiring programme. You will find a preview elsewhere in the magazine. As always, ITEA is founded on the people and the projects, and I hope you enjoy reading the selection of people and projects chosen for this issue. I look forward to seeing you in Paris.



Fopke Klok
ITEA 2 Office Director

A handwritten signature in black ink, appearing to read 'Fopke Klok', written over a light blue map of Europe.

Fopke Klok

ITEA 3 labelling

A close-up photograph of a human eye, where the iris is replaced by a glowing green map of Europe. The eye is looking slightly to the right. The background is a soft, out-of-focus grey and white.

EUREKA's High Level Group meeting in Budapest in June 2012, at the end of the year-long term of the Hungarian Chair, officially labelled ITEA 3 as the successor to the ITEA 2 cluster on Software-Intensive Systems and Services. The new cluster will run from 2014 to 2021, offering an even more dynamic approach to industry-driven cooperative research in this critical area as Europe enters a period of ongoing change.

ITEA 3 set to revitalise European software research

The highly successful ITEA and ITEA 2 programmes have resulted in a strong and open collaborative pan-European research community for information and communications technology (ICT) characterised by an efficient management process, high quality innovation and fast time to market. ITEA has built up enviable track record with major achievements in Europe's most competitive industries, such as automotive, communications, healthcare, aerospace and consumer electronics.

ITEA offers a unique approach to research and development (R&D) in Software-Intensive Systems and Services. This uniqueness derives from having a programme that is led by an industrial community and is closely connected to the national public authorities. ITEA is open to partners, both large industrial companies and small and medium-sized enterprises (SMEs) as well as research institutes and universities. ITEA's success with large companies and SMEs is demonstrated in the excellent opportunities these companies gain to broaden their scope internationally.

PLAYING KEY ROLE IN INNOVATION

In the transition to a service economy, ITEA will play a key role in ICT innovation and mastering the economic and societal challenges that will prevail

during a period of ongoing change through to 2030. ITEA 3 will continue to address the full spectrum of software-intensive systems and services.

KEY AMBITIONS OF ITEA 3

- Contributing ICT-based innovation to European competitiveness and wellbeing;
- Addressing societal needs for the benefit of European citizens;
- Anticipating technological trends and paradigm changes;
- Contributing research excellence to Europe's competitive software-intensive systems and services sector;
- Combining research excellence with innovation;
- Delivering tangible results;
- Continuing to ensure fast exploitation of results;
- Encouraging long-term exploitation;
- Contributing to standardisation.

ITEA 3 aims to mobilise a total of 20,000 person-years over its full eight-year duration, or 2,500 person-years annually, representing a total investment of more than €3 billion from 2014 to 2021. This level

of ambition builds on the experience in ITEA 2, the need to narrow the gap in R&D investment – meeting the Lisbon objective of 3% of GDP – and the ever-growing importance of software-intensive systems and services.

DEVELOPING A LIVING ORGANISATION

Key changes in ITEA 3 will include developing a living organisation with a living roadmap to enable innovation to be driven at grass-roots level. ITEA 3 also intends to significantly shorten the period from idea to project start to 10 months. It will also take a more global approach to research partnerships and exploit its strong relationships with other initiatives, particularly the ARTEMIS embedded computing system Joint Undertaking, other EUREKA clusters, EIT ICT Labs and national competitiveness clusters such as the French Systematic ICT cluster, the Dutch Point-One nanoelectronics and embedded systems cluster and the German SafeTRANS embedded systems for transport cluster.

Work is underway on a radical rethink of the new roadmap, with a shift away from a static version only updated at intervals. The new approach will support people in the field to determine where innovation is required and provide a baseline to evaluate project success.

Based on actual project results from both ITEA and the ARTEMIS JU, the living roadmap will be the main ITEA 3 tool in steering innovation and evaluation processes, reinforcing the bottom-up approach of EUREKA clusters. It will describe a set of societal challenges and take into account a shared state of the art to keep projects on track and provide a continuously updated indication of where innovation is needed next.

STRONG SUPPORT FROM INDUSTRY AND PUBLIC AUTHORITIES

ITEA 3 has obtained strong backing from industry and the public authorities in the EUREKA member countries.

“Our company has been strongly involved in the creation and in the operation of ITEA and ITEA 2, and our businesses have benefited a lot from the results and the partnerships in many ITEA and ITEA 2 projects,” says ITEA 2 Board member Aart van Gorkum, Program Manager Lighting, SVP Philips Research, the Netherlands. “Therefore, we are very happy with the labelling of ITEA 3 and the strong support it has received from the public authorities in the EUREKA countries.

“Software-intensive systems and services are key for innovation in the Philips businesses of Healthcare,

FIVE KEY ELEMENTS FOR LIVING ROADMAP

1. *Societal and economic challenges:* gathering all the challenges targeted by ITEA projects;
2. *Projects:* describing the projects which produce the state-of-the-art documents;
3. *Author database:* gathering information on authors of the state-of-the-art documents;
4. *Company database:* gathering information on companies involved in the state-of-the-art documents;
5. *State-of-the-art documents collected from the projects:* creating a panorama from the different areas covered by the ITEA projects.

Lighting and Consumer Lifestyle,” he adds. “The approval of ITEA 3 provides an excellent basis for future partnerships to address our new growth initiatives.”

“We believe the EUREKA network has taken a strategic step towards European leadership in Software-Intensive Systems and Services by adopting the continuation of ITEA 2 with ITEA 3,” says Okan Kara of the Scientific and Technological Research

Council of Turkey (TÜBİTAK) and EUREKA High Level Representative for Turkey. “We congratulate members of the ITEA 2 Board and representatives of all supporting public authorities for the successful preparation and application process for the ITEA 3 cluster.

“Considering the growing interest of the Turkish ICT community in ITEA 2 calls, we aim to maintain our consistent funding support for successful ITEA 2 and ITEA 3 projects,” he continues. “We wish success to the representatives of Turkcell Technology and Mobilera for their forthcoming roles and responsibilities in ITEA 3.” In addition to Turkcell Technology, which joined the ITEA 2 Board in 2011, Mobilera will join the ITEA 3 Board, giving Turkey two companies on the ITEA Board from the start of ITEA 3.

PREPARATIONS WELL UNDERWAY

Preparations for ITEA 3 have been underway in cooperation with industry, the public authorities and the ITEA community since mid 2011. ITEA 2 is already working closely with its partners to speed up labelling and funding for new projects. Many of the innovations envisaged when preparing for ITEA 3 will already be introduced in the remaining ITEA 2 call in 2013 – enabling a smooth transition to ITEA 3 in 2014.

Global high ground

Building on software innovation for global success

ITEA and ITEA 2 have established an enviable track record in project success in the software and software-based systems and services domain. Highly relevant results, quickly exploited, have enabled many European companies to build strong positions in their own markets. And this has made it possible for several major European enterprises to obtain world leadership in specific areas – from digital cinema to high-performance computing applications in metal foundries and medical imaging.

ITEA 3 intends to build on this success to drive future software innovations that will give European industry a leading edge worldwide.

“Both ITEA 2 and its predecessor ITEA have had a major impact on European industry and users of information and communications technology (ICT),” says ITEA 2 chairman Rudolf Hagenmüller. “Our projects focus on innovation, business impact and fast exploitation of results – enabling us to stay at the global forefront in research, development and innovation.”

“Through this focus, ITEA 2 has already enabled key areas of European industry to gain a leading edge worldwide. ITEA 3 will enable us to seize the high ground to ensure that European industry continues its global prominence.”

THREE ITEA SUCCESS STORIES

Digital Cinema, finished in 2003, has led to a European company dominating digital film distribution worldwide.

ParMA, finished in 2010, addressed the high ground of high-performance simulation, leading to German dominance in foundry technologies.

HiPiP, finished in 2011, has led to life-saving medical imaging equipment already being installed on both sides of the Atlantic.

DRIVING DIGITAL FILM DISTRIBUTION

The digital distribution of films signals a major technical and economic step forward for the global film industry. This requires not only a universal long-term standard to meet the needs of cinemas showing feature films, the studios making the films as well as equipment manufacturers and others involved in the digital distribution chain but also a complete solution in terms of post-production, transmission, theatre system and projection.

This was achieved in Europe through Digital Cinema – an ITEA project that ran from 2001 to 2003. One of the strongest project partners was the major Belgian visualisation system manufacturer Barco.

"In 2009, six years after the end of the Digital Cinema project, Barco became world market leader in the digital cinema domain. In 2011, one third of Barco's revenue resulted from digital cinema, being a highly-profitable business domain for the company. Seizing the high ground means becoming a world market leader."

Luc Desimpelaere, Director of External R&D and Innovation Programs, Barco Technology Center, Belgium and ITEA board member

EXPLOITING HIGH-PERFORMANCE COMPUTING

The ITEA 2 ParMA project which ran from 2007 to 2010 brought together leading European high-performance computing players, led by major French computer manufacturer Bull. It resulted in innovative, flexible and open technologies taking full advantage of multicore architectures which are already enabling the development of power-intensive innovative embedded applications and helping achieve new goals in modelling and simulation.

ParMA produced a unified package of tools for parallel programming for multicore architectures using bullx,

the world's best supercomputer. The application fields in which these results are being used include foundry combustion, iron casting and metal-forming simulation. In all three domains, ParMA resulted in a drastic reduction of the overall run-time of complete simulations. The reduction in some cases is 23%, in other cases 30% and in metal in metal forming 13 hours have been reduced to just 1.5 hours.

As a result, impressive competitive advantages have been achieved for the German metal industry. Moreover, one combustion power plant reported a reduction in CO₂ emissions by 16,000 tonnes a year.

"Progress in casting process simulation has helped to reinforce the productivity and quality of the German foundry industry, a very important sector of the economy. The German metal sector has some 87,000 employees in 600 foundries; revenues of €14 billion a year; and Germany is number 1 in Europe and number 5 worldwide."

Jean-Marc Morel, software engineering manager, Bull, France

PROVIDING HIGH-PERFORMANCE MEDICAL IMAGING

The ITEA 2 HiPiP project, which ran from 2008 to 2011, exploited high-performance computing to speed up use of medical imaging. These new technologies make it possible to establish a reliable diagnosis quickly, apply radiotherapy or monitoring a treatment in real time and even analyse biopsy tissue samples at cellular level.

Such an approach has huge potential with numerous possible applications whose common need is for precise 4D images – the three spatial dimensions over time – for different therapies, be it X-rays, positron emission tomography, magnetic resonance imaging

or computed tomography. Because the imagery is so much more precise, a great deal more data have to be processed in the short time that the patient is actually present during a consultation or examination.

HiPiP harnessed the power of two regional competitiveness clusters: the Dutch Point-One cluster in Eindhoven with its knowledge on medical imaging and the French Systematic cluster in Paris with its edge in high-performance computing.

"High-performance medical imaging is a high ground with application fields in early Alzheimer detection, lung-cancer surgery, oncology and minimally invasive heart operations. Based on these results, Philips was able to launch an advanced system for navigation in heart operations in 2012. The first three customers have been hospitals in Berlin, Boston and Chicago. Seizing the high ground means being able to compete with the main competitors in their home market."

Frank van der Linden, Partnerships projects, CTO Office, Philips Healthcare, The Netherlands

PUTTING EUROPE AT THE GLOBAL FOREFRONT

The power of the ITEA community, the excellent cooperation between large and small enterprises, research centres and universities built up in ITEA and ITEA 2, and the improvements planned for ITEA 3 in terms of the living roadmap, faster funding and better control of state-of-the-art innovation will combine to improve European competitiveness and help put its industry at the global forefront.



Pushing the boundaries for international success

The climate for funding of software-intensive research in the Netherlands is looking positive. Public investment in EUREKA information and communications technology (ICT) research projects restarted in 2012 with a major commitment to supporting Dutch participation in ITEA 2 projects. However, there is a clear need to consider all elements of public support and to ensure that research results reach the market while creating internationally successful companies.

ICT offers enabling technology in many areas of Dutch industry according to Guus Derks, International Project Officer at Dutch funding agency AgentschapNL, part of the Dutch Ministry of Economic Affairs, Agriculture and Innovation. “We have declared a series of sectors – eight plus one – as important sectors where we want to see many improvements in the coming years,” he explains. “One of these is the high tech systems and automotive. Within this sector, software-intensive industry has special attention.”

Given the differences in wages and other employment costs, it is not the best strategy for the Netherlands to aim at being a labour-intensive production centre. “We want to be a knowledge-intensive country,” says Derks, “so research and development plays a very big role and this is the way to go forward.”

FUNDING FOR SUCCESS

Dutch partners have always played a major role in the ITEA and ITEA 2 programmes but recent austerity measures have meant that funding for EUREKA projects has been under serious pressure in the Netherlands. However, earlier this year, the Dutch Ministry of Economic Affairs, Agriculture and Innovation confirmed the availability of funding for Dutch partners in ITEA 2 and the nanoelectronics Cluster CATRENE projects. These positive funding messages support and stimulate the continued strong participation of Dutch partners in ITEA 2, benefiting both Dutch and European leadership positions in the area of software-intensive systems and services.

“This year we are able to support ITEA 2 projects with €13 million,” says Derks. This covered ITEA 2 projects which had been submitted and labelled in 2010 and 2011 – ITEA 2 Call 5 and 6. “This is a co-funding structure between the government, research and industry. We pay between 25% and 50% of costs depending on the size, type and activities of the organisations concerned. And we have the possibilities for loans for companies to take research a step further.”

The Netherlands also has tax schemes intended to cut the costs of personnel and materials needed for innovation. However, elections in September 2012 may affect future research funding policies.

COMMITMENT TO SMES

AgentschapNL – literally the NL Agency – implements policy once decisions have been made at political level. “We develop the necessary mechanisms and have contact with the companies to find the projects,” says Derks. “We also have a huge network enabling the creation of new projects both nationally and internationally.”

The Netherlands is strongly committed to supporting small and medium-sized enterprises (SMEs). “We think SMEs are very important as they are faster at moving to new technologies than big industries.





SMEs have the flexibility to innovate fast whereas the industry partners tend to act as system integrators.” One indication of this commitment is that the relative level of funding for SMEs is higher than for large enterprises. And in the past, AgentschapNL has requested minimum SME participation in projects. “We also have a preference for projects that have some SME participation over those where no SMEs are involved,” says Derks. “We try to connect SMEs to large companies through our networks. We can also help find contacts within SMEs to provide the knowledge that is missing within the large companies. Our intention is to build up ecosystems that connect large companies, SMEs and research organisations/knowledge institutes.”

Derks would like to see the whole public support system reviewed to see where the opportunities lie. “We need to examine the line from fundamental research to internationally successful companies,” he says. “How does this route work and where can we as governments or as Europe support such companies to get from a new technology to international success? This applies not only to ICT. We need to make it easier for companies to participate in the innovation process, to be successful with the results and to get them to market.”

FOR MORE INFORMATION:
www.agentschapnl.nl

SOPHEON – a case in point

“Our main business area is innovation management,” explains Huub Rutten, co-founder and VP for research for Dutch software SME SOPHEON. “We are a software supplier and provide specialised consultancy services to help large companies improve their innovation management performance.”

SOPHEON software supports the decision-making processes that companies use to spend money on innovation and to determine what kind of innovation they do. The software also supports product-development processes. “Our approach is based on the stage-gate process for new products,” says Rutten. “Our process automates and coordinates the process and supports knowledge-intensive processes”.

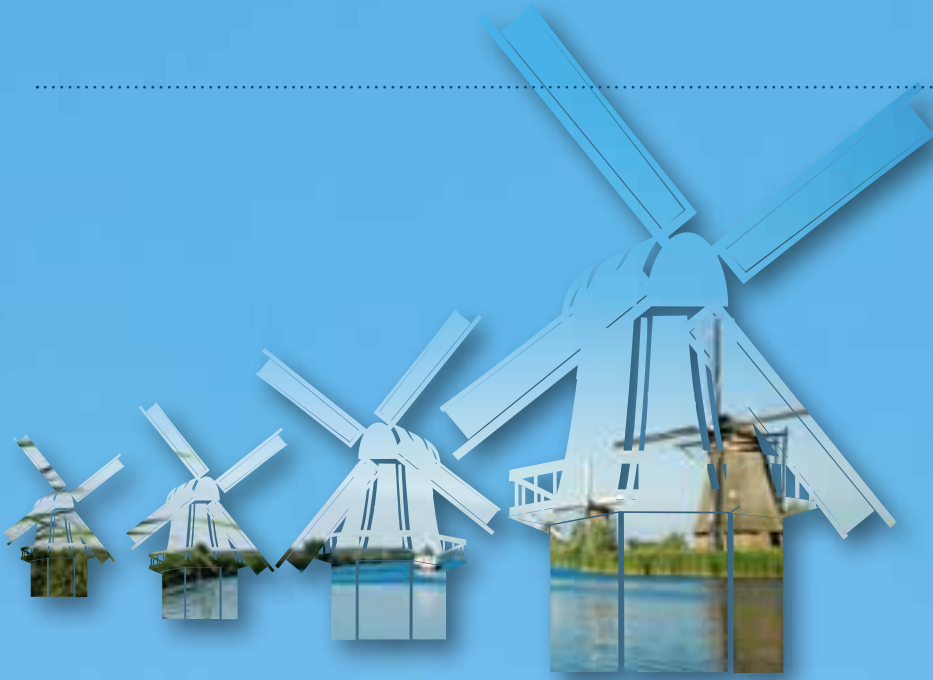
The original founders have a background in both linguistics and involvement in business-process improvements in the late 1980s and 1990s. They came into contact with each other and started a

new company to improve knowledge-intensive processes. “If you have a linguistic background, you have a very good background for understanding the cognitive side of creating knowledge as well as the information side,” says Rutten.

“We started the company in 1993 supported by some EU Framework Programme projects. We were familiar with what was going on in the market and saw an opportunity in an area of what is called automation of non-structured data. Of course, what we do is very structured but not in a numerical way as such. All our research projects over the past 20 years have been focusing on getting people to understand how to automate decision making.”

Without software SOPHEON would not have a business. “We started out on publicly funded projects. In other words, without such funding we would not have had a business. The company went public in the mid 1990s in the Netherlands and in London. We then got the money to develop our products from investors, from the market.”

The ITEA label can give a real business boost. “It is good for our image and certainly helped us to go public. It is a sign of quality”.



SOPHEON now employs 110 people worldwide and its customer base includes 200 very large global organisations that use the Accolade platform to support innovation. Accolade offers an end-to-end enterprise innovation-management solution enabling companies to synchronise strategic innovation planning, idea development, product portfolio management and process execution. Among these customers are industry leaders such as BASF, Corning, Electrolux, Honeywell, PepsiCo, Philips, Northrop Grumman and Total Petrochemicals.

THE RIGHT CHOICES

In the 1990s we had the choice between the Framework Programme or the EUREKA (Σ!) route for research funding and research collaboration. “We have a huge preference for the Σ! approach. It involves less administration and it is certainly a lot less subject to politics. The decision making is more transparent and the risk is less – the risks associated with a Framework Programme proposal can be substantial.” Initiatives for new projects tend to be taken care of by large organisations such as Philips or the Dutch research organisation TNO, who have professionals that deal with the Σ! office. “So we, as a small company, can use the infrastructure of the larger organisations. We do have our direct contacts but we think this is a very practical

way of going about things. We are less positive about the method of project selection by the authorities. It is jury-based. Therefore a good project proposal might fail, for instance, because of a bad presentation. And that selection process is unlikely to change. Also, the trend at the moment is to provide loans rather than direct funding and this is not really good for small companies. Small companies need cash up front.”

SOPHEON would never participate in a time-demanding project without funding. “An alternative approach is to make money with the research – we have an idea and we find a launching customer ready to invest in it, with priority use. Currently we have 200 customers so we have access to heads of research and R&D. Now when we have an idea, we ask our customers if they are interested in participating, and then we can initiate our own project.”

However, when a company like Philips wants to drive its technology forward, it needs SMEs and universities to work with. “Philips is quite happy with what we have done together over the past ten years and wants us to stay with them. It is keen to build its own research ecosystem. We think that the Dutch government should be very careful and should try to support these ecosystems.”

EUROPE AND BEYOND

International research – not just European but also global – is crucial. In fact, Huub Rutten believes that ‘European’ research is something that had a place only in the past. “We will participate in new ITEA projects if we get the funding, and that looks likely with, for instance, French companies, but our business is global. So we have to globalise our research – and collaborative research enables you to build economic networks for the future. So when we work with partners, it is a shame that the funding stops outside the Netherlands. It is not wise to shut ourselves off, for example, from talent in India. And the Netherlands will only fund researchers living in the Netherlands. If we have a project involving staff from India, it will not be funded, which means no investment in the global aspects of our business. We are an exporting country and need to work with people on a global basis.”

When EUREKA was set up, its aim was to encourage European collaboration at a time when this was not happening. “That is more than 30 years ago. The landscape has changed and international cooperation is what counts. Europe is just another global village. The projects we are involved in always have people from outside Europe! The funding is simply not geared to opening international doors, which is basis for trade of the future. Also the ITEA community needs to open up more, especially when 30% of people who work on projects are not likely to be European. If the composition of research projects is not international, then international sales will suffer. If we want to develop a global co-operating real-time image service for ambulances, we need to understand the context of ambulances in Bangalore, for example.”

The ITEA label can give a real business boost. “It is good for our image and certainly helped us to go public. It is a sign of quality. It’s important for us and very important for the Netherlands.” This is especially true for a small country that depends economically on international global trading power.

FOR MORE INFORMATION:

www.sopheon.com

Sharing a vision for ICT innovation

The ITEA & ARTEMIS Co-summit 2012 will be held in CNIT - La Défense in Paris, France on 30 and 31 October. It will be the 5th edition of the Co-summit, with more than 650 participants from industry, academia, public authorities and press expected to attend this key European event. This year's theme: *Sharing a vision for ICT innovation.*

ICT AT THE HEART OF INNOVATION

A period of continuous change and disruption is forecasted to last until 2030, resulting in a radically different way of doing business to current practice. The major areas of change and disruption are expected in terms of globalisation, sustainability, management of scarce resources, climate change, urbanisation, green, safe & supportive door-to-door mobility, healthcare & nutrition and the digital society. For Europe, an industry strong in ICT-based innovations is a prerequisite for maintaining a competitive position globally. ICT is an innovation driver that touches many key areas. To maximise the use of ICT, it should not only be applied intelligently but also be fuelled by R&D of innovative applications. ICT is at the heart of innovation and continued research and innovation in ICT are needed to master the emerging economic and societal changes.

ICT INNOVATION AT YOUR FINGERTIPS

Browsing the around 90 projects on show at the ITEA and ARTEMIS project exhibitions, Co-summit participants will be able to discover examples in abundance of ICT being at the heart of innovation. The exhibitions will be open on both Co-summit days. The Co-summit also welcomes the presence of different regional and national ICT Clusters in the exhibition area.

As in previous years, the exhibition space will also have a special focus area. This year the focus is "Reliability" and the area will consist of related ITEA and ARTEMIS project stands.

This year's theme is the basis for the two-day conference programme, including plenary keynote speeches, panel sessions and different parallel sessions. A few details are still to be confirmed.

THE CO-SUMMIT PROGRAMME, DAY ONE

On Tuesday 30 October, the plenary programme will be opened by a top level French government representative. The keynote speech on this first day will then be given by the Chairman and CEO of ATOS, Mr Thierry Breton. Furthermore, the plenary programme includes a panel session on the Co-summit theme with speakers from industry, EUREKA and the European Commission. The session will be moderated by Emile Aarts, former Chief Scientific Officer at Philips and now Professor of Computing Science at Eindhoven University of Technology.

PARALLEL SESSIONS

In the afternoon, three different parallel sessions will be held on the following topics:

- Shared vision 2030 & Living roadmap
- Reliability
- EIT ICT labs

To give you an impression of what these three afternoon parallel sessions will involve, the session moderators have prepared short session summaries.

VISION 2030 AND THE LIVING ROADMAP

What are the implications of the Vision 2030 and the challenges posed by its main areas of change for the project communities? This parallel session will briefly review and discuss the contents of ITEA-ARTEMIS Vision 2030 as introduced at the plenary opening in the morning before going on to consider the ITEA Living Roadmap, which is based on the challenges posed. The Living Roadmap will be introduced by a demonstration with reference to the contents of ITEA and ARTEMIS projects. Finally we will look at and indicate the implications of both the ITEA Living Roadmap and the ARTEMIS repository for the project communities: easy access to the state of the art along with support for consortium building and for dissemination. There will, of course, be plenty of time for audience participation through a Q&A component at the end.

RELIABILITY

Embedded systems and software already pervade everyday life, and their impact will only increase. When we rely on such systems to control such things as the operation of cars, medical systems and energy infrastructures, it is vital to ensure that both human safety and the security of these systems are guaranteed and are tamper-proof. Secure design processes must therefore ensure that embedded

systems are extremely reliable in all possible conditions and exclude possible malfunction from either system failure or external causes. The rise of new technologies, such as multicore processing, and the growing need to optimise cost while integrating both critical and non-critical functionalities, present major challenges to the modern design paradigms of safety-critical systems. This session on high reliability focuses on the latest techniques for high-reliability system design and opens the discussion on forward-looking issues, including mixed-criticality systems, to guarantee safety using new hardware architectures and system security. This session reflects the shared part of the Co-summit exhibition.

EIT ICT LABS

At the Co-summit 2011 in Helsinki, a structural link between ITEA and EIT ICT Labs was established. The concept foresees a combination of the innovation power of ITEA and the exploitation and training resources of EIT ICT Labs. Meanwhile, complementary EIT ICT Labs catalysts are being prepared for several ITEA projects, one of which focused on safety at home among the elderly people and the very young while the EIT ICT Labs catalyst "Test beds, Testing Platforms and Simulation Tools" applied the results in practical cases at home. Considerable insight gained into the market's role of smart lighting and use of robotics in simple and effective concepts to enhance the design of safety for the elderly at home. Not only did the health and wellness testbed teach the partners to focus on human-scale issues but also revealed



JOIN US AND REGISTER!

For more information and registration, visit our Co-summit website: www.itea2.org/cosummit2012. The registration deadline is subject to availability.

the modest, more practical robotic enhancement to everyday devices that will help care for the elderly and add clear value to the family.

THE CO-SUMMIT PROGRAMME, DAY TWO

The second Co-summit day, Wednesday 31 October, will start with the community sessions of ITEA and ARTEMIS with presentations on the programme highlights as well as presentations by the ITEA Achievement Award 2012 nominees. This year's nominees (in alphabetical order) are:

- **DIY-SE** (Do it Yourself Smart Experiences): accelerating access to the Internet of Things – a technical platform that removes barriers to user-generated IoT applications;
- **JEDI**: an end-to-end High-Definition 3DTV chain for consumers;
- **MODELISAR**: multidisciplinary modelling and simulation to speed the development of automotive systems and software.

In the afternoon, a plenary panel session will be held on 'innovative engineering', with speakers from different ITEA and ARTEMIS projects, and moderated by Gérard Roucairol, former Vice-Chairman of ITEA 2 and now President of Teratec, the European pole of competence in high-performance simulation.

Innovative Engineering is a special kind of innovation, bringing new products and services to market,

and riding on the crest of an accelerating wave of technological advancement. To be effective, it must consider the three major ingredients of innovation: technological advancement (the enabler), market position (the driver) and complementary assets (the carrier).

Innovative Engineering is an on-going challenge for the R&I community, challenges that are being driven by new technologies and compounded by the extremely different lifetimes of software and the products in which software constitutes a vital embedded element. Furthermore, the growth of "multi-X" dimensions of software and systems engineering (multi-disciplinary, multi-site, multi-company, multi-cultural) seems to be continuing unabated. With demand for safety, security and the reliability of software intensive systems and services continuing to increase, innovative engineering is both

an intriguing and eminent subject for such a plenary session.

The Co-summit will close with a plenary speech by Dr. Charlotte Brogren, Director General of the Swedish Governmental Agency for Innovation Systems – VINNOVA, and a joint Exhibition Awards ceremony.

Open-source key to tool platform flexibility

Two ITEA projects – the almost completed OPEES and the active AMALTHEA – are showing the way to the creation of open-source tool platforms and support communities for software development with environments based on model-driven technologies. The open-source route is intended to extend tool system availability over the long lifetimes of many embedded systems in applications such as transportation, satellite communications and energy. The results should help cut development costs, simplify tool system use across distributed enterprises and ensure sustainable support for embedded systems in applications where lifetimes can span many decades.

OPEES

Building a European open-source tool community

OPEES

ITEA 2 08019



Gaël Blondelle
Project leader,
OBEO

Partners

Adacore
Airbus
Alyotech
Atos Origin
CEA LIST
CNES
CS
Dassault Aviation
EADS Astrium
Satellites
EADS Astrium Space Transportation
ICT-Norway
Indra Sistemas
INRIA
Institut National Polytechnique de Toulouse/
Institut de Recherche en Informatique de
Toulouse (INPT/IRIT)

Katholieke Universiteit Leuven

MBDA
OBEO
ONERA
SQS
Space Applications Services
Thales
Universidad Politécnica de Valencia (UPV)
University of Skövde
Xipp

Countries involved

Belgium
France
Norway
Spain
Sweden

Project start

November 2009

Project end

December 2012

Website

www.opees.org
www.polarsys.org

The ITEA 2 OPEES project set out to develop an open platform for software tools to support critical embedded systems engineering technologies and to secure competitiveness and development of the European software industry. OPEES has started to build a community within the ECLIPSE Foundation to ensure long-term availability of these open-source tools for critical industrial sectors such as aerospace, transport and energy.

OPEES was initiated by the users rather than the developers of technologies. Companies such as Airbus, Ericsson, Thales or Indra needed tools and platforms to develop embedded systems with several requirements less available with proprietary software. These included:

- Tools that adapt to the specificities of users' own processes;
- Tools that will be available for the whole lifetime of the embedded system – for example, a satellite programme can last for more than 25 years and an aircraft or nuclear plant whose life cycle is 40 to 50 years;

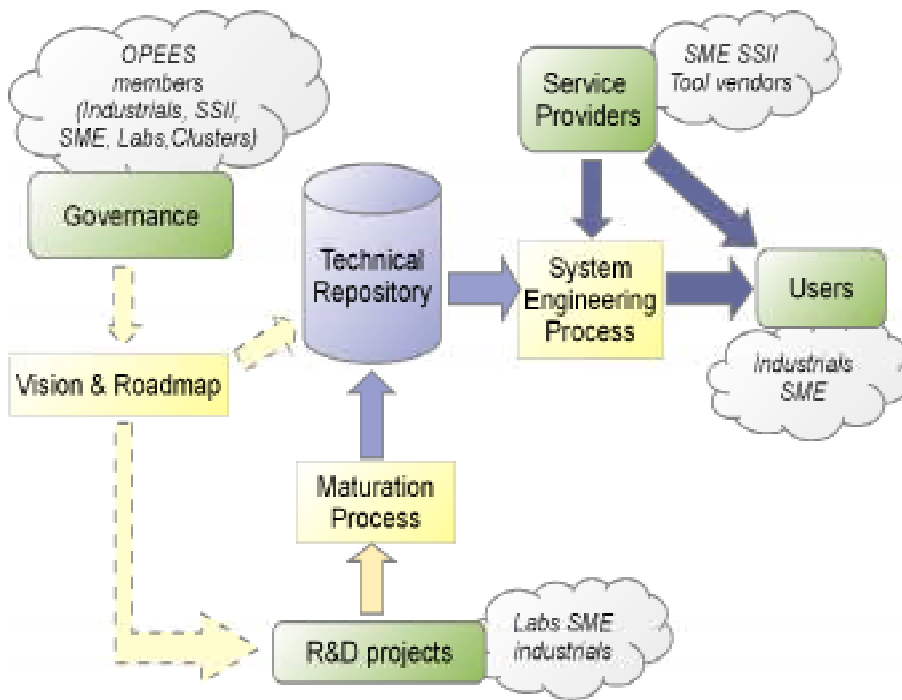
- Use of open standards for compatibility between tools;
- Easy deployment even in extended enterprises.

“Long-term availability is very important for embedded-systems deployment,” insists project coordinator Gaël Blondelle of OBEO, the model-based development tools specialist. “Imagine you have a problem in an embedded system. You know how to fix it but have no access to the tool chain as compatible hardware is no longer available or the tool chain is

too old and you cannot rebuild the embedded system. This can be a big problem.”

Since embedded systems with proprietary software have a maximum support period of ten years, it is necessary either to migrate to a new platform or to accept the absence of support. Moreover, many of these tools are now owned by North American companies.

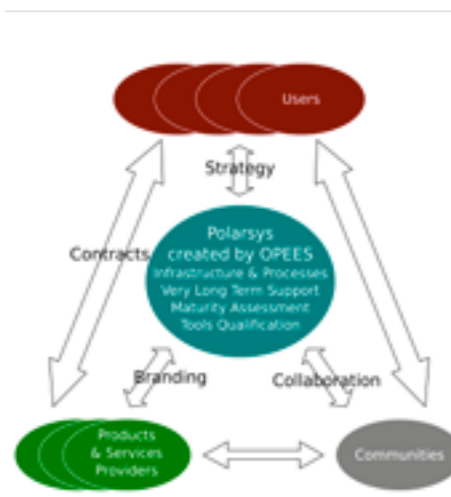
“With open-source tools for engineering development, you can either adapt the tools to run on new hardware



or can benefit from the openness of the soft code to migrate more easily to a new version of the tools,” says Blondelle. “An open tool platform makes it possible to adapt tools to your own process and ensures long-term availability of tools. The result is a long-term benefit to systems developers.”

NEED FOR ECOSYSTEM

However, open-source tools are not enough; there is a need for an ecosystem of service providers. OPEES set out to create this ecosystem. The project, which included academics, tool vendors, software providers and systems developers, therefore both developed the necessary new technologies and set about implementing a sustainable ecosystem by leveraging the OPEES members from France, Spain, Belgium, Norway and Sweden.



The result has been the Polarsys industry working group within the Eclipse open source software community announced in November 2011 and now in operation. Eclipse offered a suitable structure and most tools involved are based on the Eclipse platform. The goal of Polarsys is to organise the open source and business ecosystem around tools for the development of dependable embedded systems to create better tooling and enable long-term support for these tools.

Four main aspects are covered:

1. Open innovation to collaboratively create better methods and tools
2. Computer assistance and automation with a focus on model-based system engineering;
3. Certification to ease the tool qualification in complex certification processes;
4. Very long-term support.

Polarsys enables collaboration between systems and tool developers. It implements a specific software infrastructure to ease long-term availability of tools. “You have to be able to build and set your tool chain for years – you don’t want simply to switch from vendor lock-in with proprietary software to service provider lock-in if you selected only one service provider to implement and maintain your tool chain,” says Blondelle. “Polarsys gives us a common and vendor-neutral build-and-test infrastructure designed to last for years.”

This infrastructure is the meeting point of the systems and tool and software developers. If a

system developer selects a service provider to help it maintain its tool chain, it will ask the provider to work on this common infrastructure and not on its own build-and-test server.

BUILDING ON EXISTING TOOLS

Many of the tools to be managed by Polarsys already exist and are being used by systems developers. For example, Astrium uses the TopCased model-driven engineering environment for embedded systems and safety-critical application development in satellites, and a number of OPEES partners use Frama-C to check that generated code is correct.

However, several new technologies had to be developed, including important components for model-based systems engineering. These included parts of Papyrus, TopCased, GeneAuto as a qualifiable code generator, Unisim for simulation, Binary Interface Tool to handle interfaces between components and ArCon to validate models. The objective is to have all the parts of a full-feature tool chain.

Polarsys involves both large and small service providers – large companies and research institutes such as Airbus, Astrium, Thales, Ericsson, Indra, TCPSI, Inria and CEA and smaller companies like OBEO in France, Itemis in Germany and Intecs in Italy. The two latter companies are not members of OPEES but are starting to be involved in Polarsys, which shows that the community is already gaining external members even before the end of the project.

“The good news is that other members of Eclipse – such as SAP – also use the Eclipse platform for their own tools and are keen to work on the long-term aspects in cooperation, although not necessarily with same goals!” says Blondelle. “However, their long-term commitment is ten years, while we want to implement more than that. In practice, this means that after the first ten years we will switch to another mode for very long-term support with same tool chain but with a lower degree of response.”

“The development is more or less finished and is now being published,” says Blondelle. “However, a lot of work is still needed on ecosystem development as well as on branding for OPEES/Polarsys service providers. We also need to finish the testing processes and continue to recruit new members for Polarsys.”

MORE INFORMATION:

www.opees.org and www.polarsys.org

Open tool platform focuses on multicore systems design using model-driven methodology

The ITEA 2 AMALTHEA project is developing a consistent, open and expandable tool platform for embedded systems with an initial focus on designing multicore systems for use in the automotive industry. The approach will support AUTOSAR compatibility and the high level of variability found in modern motor vehicles. The resulting platform will be distributed under an Eclipse public licence.

AMALTHEA

ITEA 2 09013



Karlheinz Topp
Project leader,
Robert Bosch GmbH

Partners

Behr Hella Thermocontrol
Dortmund University of Applied Sciences and Arts
ETAS
IFAK
Itemis
Metso Automation
Mobilera
Nokia Siemens Networks
Regensburg University of Applied Sciences/LaS³
Robert Bosch GmbH
Timing-Architects
TOFAŞ Türk Otomobil Fabrikası
University of Oulu
University of Paderborn

Countries involved

Finland
Germany
Turkey

Project start

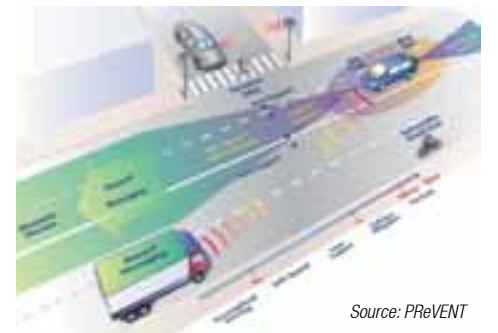
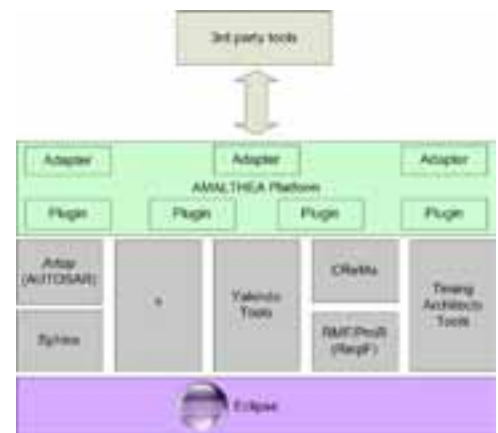
July 2011

Project end

April 2014

Website

www.itea2.org/project/index/view/?project=10015



Most current tool environments tend to be highly fragmented with individual tools offering specific views on the embedded system concerned or on the separate steps in the development process involved. And there is still often a need for data to be transferred manually from one part of the tool chain to another. So a platform is needed to provide a continuous design flow – creating the data or models only once on a single platform and then being able to look at these data or models using the different tools.

The objective of AMALTHEA is to make such a platform as open as possible. This will enable a variety of tools to be connected – whether standard, existing, commercial, self-built or individual company tools. “This involves looking for mechanisms that make the platform very open so that a lot of different tools can be connected,” says project coordinator Karlheinz Topp of Bosch. “At the same time everybody needs to be able to use the platform so that work can continue in the maintenance phase after the project is finished – and platform use can be extended to all tools for embedded systems.”

COMMON TO ALL EMBEDDED SYSTEMS

AMALTHEA is not developing a platform only for the automotive industry. “It will be common for most embedded systems industries but some elements will be provided for automotive use,” explains Topp. “AUTOSAR performance has to be supported and so we intend to build some AUTOSAR conformity into the platform itself but the rest will be in the supplementary

individual tools.” AUTOSAR is the open and standardised automotive software architecture jointly developed by car makers, suppliers and tool developers.

Problems can be anticipated given the variability in electronic control units, which should also be supported to some extent in the platform as the automotive industry has a very high level of variability or individual system variants. For example, an engine control unit can have hundreds of official variants a year with thousands of different versions in development.

Benefits will therefore include accelerated development. At the end of the tool chain, developers will not need to change the handling in the individual process steps. “The AMALTHEA platform will bring efficiency in the whole development process,” insists Topp. “We hope this approach will give European developers the edge over low-cost production countries and that we can keep these developments in Europe.”

While several attempts have been made before to build such platforms, open source is still not available. Moreover, most attempts have covered only the design component of the design and test phases that the ITEA project wants to include in its platform.

NEW ARCHITECTURE BEING DEVELOPED

Although not focusing on developing new tools particularly, a new architecture is envisaged for the platform itself to handle multicore applications. But

even this will not be brand new but rather make use what is already available. “Our main innovation is in integrating things already there, for example building our platform around the already well-developed, open-source Open Services for Lifecycle Collaboration (OSLC) standard,” says Topp. “This is used by many other publically-funded projects for compatibility with other projects in terms of tool integration and frameworks.”

AMALTHEA will only finish at the end of April 2014. The first really usable results are expected in mid 2013. “We are already cooperating with three other projects with joint workshops – TIMMO-2-USE and SAFE in ITEA and MAENAD in FP7,” he adds. “Such cooperation is important as the other three projects are looking into specific topics – such as timing, safety and description languages. We are looking at a platform that needs these aspects and so it is interesting to cooperate to avoid duplication. “

MORE INFORMATION:

www.itea2.org/project/index/view/?project=10015

Piloting utilities software in an ever-smarter world

Aerospace engineering might seem an unusual background for a specialist in software for smart utilities distribution but Eloy González Ortega of Indra Software Labs in Spain has built a solid career on tackling problems in multi-team environments learnt originally in his university education in the USA.

González Ortega trained initially as an aerospace engineer at the University of Texas in Austin. "I had a childhood dream of becoming an astronaut but my eyesight was not good enough," he explains. He chose an American university to gain an international perspective, and met his criteria for quality and affordability!

However, once he had gained both his Bachelor's and Master's degrees, he had second thoughts. "Unemployment in the aerospace sector was high at the time and I did not fancy sitting behind a desk as a designer." He therefore made the move into the energy industry, where he started as a consultant in IT projects for the utilities sector, spending two years working in a project for Kenya Power and Lighting, the company responsible for the national transmission, distribution and retail of electricity.

EXCITING PROSPECTS IN IT

"I realised the impact software development was having in society in general and in the business world in particular. Within the energy domain and the utilities segment, this implied a rapid shift in the business paradigms with many possibilities opening up. It was natural for me to get involved, since we were at the forefront of a new revolution, the information revolution. Back in the mid 1990s, Internet was in its infancy and getting involved in the IT realm with the infinite possibilities being explored was very exciting." González Ortega participated in strategic consultancy and implementation projects where he gained a deep understanding of the functioning of competitive energy markets and the impact on organisation, business processes and IT infrastructure. Subsequently, he was project leader and manager for international projects with customers in Latin America, Africa and Europe. "I became a technical expert in several engineering areas, developing and delivering large, international, complex projects," he says.



In 2001, he was appointed head of the Energy Distribution Division at Indra Software Labs in charge of overall development of IT systems for utilities focusing on energy distribution. Here he acquired a deep understanding of global utility needs in energy consumption, such as policy agendas, regulatory treatment and new business opportunities. And, in 2009 at the same company, he became head of the Energy Innovation Division in charge of overall R&D projects and activities in the energy area, at national and international level, with the focus on smart grids, smart metering, advanced metering infrastructure and energy efficiency.

MULTIDISCIPLINARY ICT RESEARCH

"In my current role, I have been working in multidisciplinary ICT research environments, participating in national and EU smart grid projects and working groups focusing on IT system integration and

smart-grid business development. As such, I actively participate in ITEA and other R&D programmes, such as FP7 and ARTEMIS, and I collaborate on a regular basis with local and EU policymakers and regulators."

He believes strongly that ITEA represents the perfect framework for collaborating in research, development and innovation projects at international level while, at the same time, it allows companies to leverage their investment efforts in new technologies with the help of the funds allocated to ITEA projects by the different national public authorities. In addition, it helps companies establish sustainable relationships with other technology companies, universities and research centres that can complement their solutions in the market.

"At Indra, we believe our contribution has had a significant impact on the successful development of ITEA projects. Our commitment has been clearly demonstrated by the leadership position we have acquired in several projects. We have used this leadership to spearhead the work in each project, bringing our industry knowledge and expertise to the consortiums to maintain focus on achieving realistic objectives with a clear usefulness in the marketplace."

CLOSER TO MARKET NEEDS

In general, González Ortega thinks companies feel comfortable working in the EUREKA type of bottom-up projects as opposed to the top-down EU Framework Programme where it is necessary to conform to the specific topics included in a particular call. "The EUREKA approach is much closer to market needs and in this respect is more realistic," he says. Activities in EUREKA are focused on innovation rather than on pure research and development with a clear vision of fast exploitation of project results.

Outside his job, he believes in profiting from quality time with family and friends – and taking advantage of the good weather in his home country. He also enjoys sports and culture – plays, concerts and films – as well as travelling.

News

Common JEDI-DVB demo at IBC 2012

In July, the ITEA 2 project JEDI and the DVB Project Office decided to set up a joint demo of DVB Phase 2a 3DTV technology at the DVB booth of the IBC 2012 exhibition in Amsterdam from 6 to 11 September this year.

The DVB-3DTV Phase 2a specification was released by the DVB Technical Module in early June 2012. This second generation of 3DTV allows the transmission of a full HD (High Definition) signal per eye whereas the legacy (non-3D) HD receivers continue showing the HD signal transmitted for left or right eye. This standard is referred to as 'Service Compatible'.

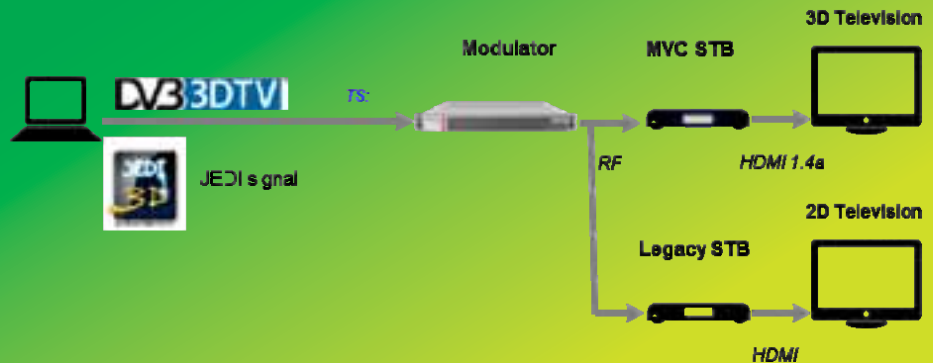
In a world premiere on 19 June, the JEDI consortium succeeded in demonstrating this second generation 3DTV signal by satellite during the final JEDI review. The uplink signal generated

in Madrid was transmitted via the Hispasat 1E satellite over Europe and then received and decoded in Caen, France.

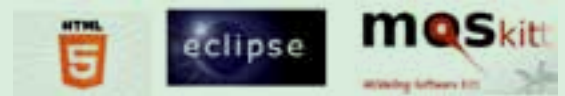
After the official approval of the Phase 2a specification by the DVB Steering Board in July, the DVB Project Office and JEDI project agreed on the following common demonstrator for the DVB booth:

Note that the JEDI demonstrator will be present for the second year at the Hispasat booth (one of the key partners in the project) at IBC 2012.

www.jedi-itea2.org



Join the UsiXML adventure



The aim of the UsiXML project is to take a model-based approach to design a new version of the UsiXML language for designing user interfaces. They are now entering the final phase of the project and the UsiXML tools have been delivered to their end users. Tools like the Task Model Editor have been developed on the frameworks of our partners and, in addition, they are also in the process of developing tools under Eclipse and Moskit. They expect that the new version of tools will be available to end users in the not too distant future.

To participate in the UsiXML adventure and test the tools on your own applications, all you have to do is register with their End User Club at www.usixml.eu/end_user_club.



Challenges in methodology, representation and tooling for automotive embedded systems

The field of automotive embedded systems is a challenging one. It is one in which methodology, representation and tooling are key elements in rising to the challenges posed. The four projects AMALTHEA, MAENAD, SAFE and TIMMO-2-USE have got together to organise an international workshop on the challenges in methodology, representation, and tooling for automotive embedded systems.

We are keen to invite you to join us to discuss the current work being undertaken and solutions being proposed in these vital areas. Why not check out what the provisional programme has in store at: <http://www.timmo-2-use.org/events/ows2012/cfp-ows2012.pdf> where you can also register to take part and find out more information.

The two-day workshop is scheduled for 24-25 September this year and will take place in Berlin. We look forward to seeing you there.



INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

Calendar

24-25 SEPTEMBER WORKSHOP ON CHALLENGES IN METHODOLOGY, REPRESENTATION AND TOOLING FOR AUTOMOTIVE EMBEDDED SYSTEMS

BERLIN, GERMANY

The workshop is jointly organised by the projects AMALTHEA, MAENAD, SAFE and TIMMO-2-USE

▷ www.itea2.org/upcoming_events

24-27 SEPTEMBER AMBIENT ASSISTED LIVING FORUM 2012

EINDHOVEN, THE NETHERLANDS

▷ www.aalforum.eu

9-10 OCTOBER EUROPEAN INNOVATION SUMMIT 2012 – 'BUILDING BRIDGES – CREATING SYNERGIES'

BRUSSELS, BELGIUM

▷ www.knowledge4innovation.eu/EIS/SitePages/eis2012_home.aspx

18-19 OCTOBER 2012 EUREKA VENTURE FORUM

ISTANBUL, TURKEY

▷ www.e-unlimited.com/events/view.aspx?events_pages_id=1517

30-31 OCTOBER ITEA & ARTEMIS CO-SUMMIT 2012

CNIT LA DÉFENSE, PARIS, FRANCE

Co-summit participants will be able to discover in abundance that ICT is at the heart of innovation while browsing the around 90 projects on show at the ITEA and ARTEMIS project exhibitions (open on both days).

This year's theme 'Sharing a vision for ICT innovation' is the basis for the plenary programme, including



keynote speeches, panel and parallel sessions. Other programme highlights are the family sessions of ITEA and ARTEMIS as well as presentations of the Achievement Award 2012 nominees.

▷ www.itea2.org/cosummit2012

8 NOVEMBER 2012 BITS&CHIPS EMBEDDED SYSTEMS EVENT 2011

'S HERTOGENBOSCH, THE NETHERLANDS

▷ www.embedded-systemen.nl

20-21 NOVEMBER 2012 EUROPEAN NANOELECTRONICS FORUM

MUNICH, GERMANY

▷ www.nanoelectronicsforum.org

19-20 MARCH 2013 ITEA 2 PO PREPARATION DAYS

ISTANBUL, TURKEY

Save the date!

DiY Smart Experiences (ITEA 2 – 08005)

Marc Roelands, Alcatel-Lucent Bell Labs
Belgium

Internet of Things platform enables user-generated applications

The ITEA 2 DiY Smart Experiences (DiYSE) project set out to overcome the barriers to user-generated Internet of Things (IoT) applications. More than 40 partners from a broad cross-section of disciplines worked closely together to develop a technical platform to enable such applications for ordinary people, developers and other ecosystem actors alike. Key outcomes are a live public experimental Internet site and a lot of underlying technical assets, many of which are already being exploited.

IoT marks the next major revolution in worldwide connectivity as the Internet evolves from a network of interconnected computers to one of interconnected objects. Smart domestic appliances, heating and ventilation systems, electronic books, road transport and even goods in transit will all have their own IP addresses, a range of sensors to measure their environment and actuators to interact with it.

However, this poses major problems in terms of the exploding heterogeneity of devices, the many application domains and an extreme diversity of customised installations and applications. There is a need, therefore, for a platform to enable the cost-effective exploitation and management of IoT systems.

DiYSE set out to combine two trends to accelerate the IoT industry: the IoT itself and do-it-yourself, the advent of very cheap, accessible, programmable and easy-to-use hardware with sensors enabling ordinary people to build their own applications in much the same way as the DIY self-sufficiency ethic of the 1960s saw more and more people making things without the intervention of experts.

BUILDING AN OPEN PLATFORM

The goal was an open platform enabling the masses to share and control their creations in a 'smart things' environment. DiYSE initially imagined people composing real physical smart objects. It quickly shifted focus to the smartness of the data produced by these objects, offering

a technical platform for further reasoning and reusable abstraction. It also demonstrated how this technology could act as an enabler for an ecosystem of players working in an IoT.

DiYSE attracted a huge consortium involving a wide range of disciplines – from technical experts keen to start programming, through systems and concept researchers looking at interaction concepts and at what the system would look like, to a perhaps unique element in the form of non-technological partners looking at human beings and how they socialise.

An initial challenge was to get the partners engaged in dialogue. It was a real experience for a lot of them, and working together with many other disciplines opened up minds while putting their own disciplines into the context of the whole cross-disciplinary team. The topic also had resonance with many other projects. A workshop at the end of DiYSE brought together seven European projects – ITEA and FP7 – working together on the IoT topic; a mix of closing and starting projects.

CONSTRUCTING THE ESSENTIAL STAGES OF CREATION

DiYSE identified a series of essential creation stages in an ecosystem to launch IoT applications:

1. *Install and connect* – sensors and other items to connect objects to the Internet;
2. *Sense* – extracting and abstracting data meaningfully and aggregating it;

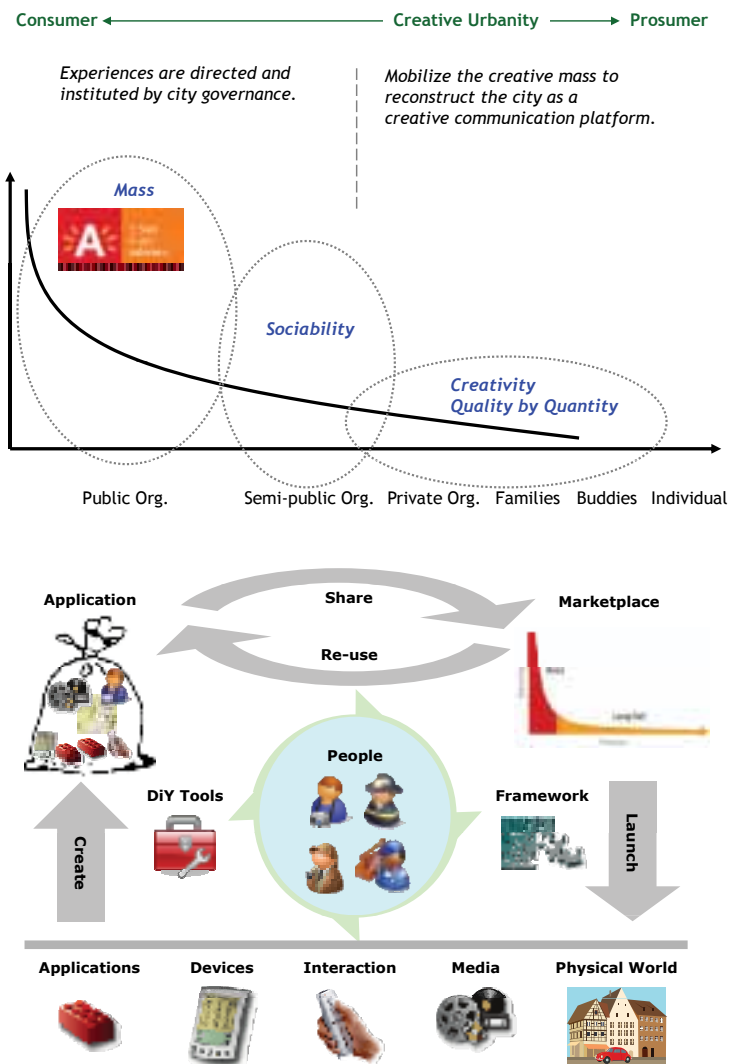
3. *Create* – building applications and reusable paradigms based on this meaningful data;
4. *Execute* – defining the necessary technology to run the multitude of applications.

In the 'install and connect' phase, partners developed:

- Hardware for sensors;
- Middleware for tiny footprint sensor boards (the Contiki operating system developed in previous projects was extended with security mechanisms for secure transport and ownership of the data) and
- Semantic enrichment of the sensor data through enhanced driver sensor gateway technology.

For the 'sense' phase, a number of prototypes furnish semantic abstraction on top of the sensors. Device vendors know what the sensor data mean and can make annotations for the DiYSE system using this semantic information, while systems developers interacting with the DiYSE system can describe what it can be used for and the transformations which can be applied by introducing a sensor. An additional important innovation for the 'sense' stage, was feature extraction from video and speech. The result is a rich stream of data flowing into the DiYSE system.

The 'create' category involves two types of systems: generic – public or carrier grade in the Internet or in the cloud – and application domain-specific. Examples of the latter include Finnish partners developing musical



installations or musical instrument creations for the mentally disabled or the elderly, allowing them to produce music themselves.

So, as an integral creation flow, the hardware designer can offer a device type and enrich it immediately with device sensor possibilities while developers have a marketplace where they can start building transformations of those data automatically incorporated in the catalogue for end users. In their turn, end users can build their own applications with a simple PowerPoint style paradigm. These applications can be shared with friends or used as templates for other applications. The result is an ecosystem at end-user level.

The 'execute' phase requires skill and ability. Hundreds of people use the experimental system with tens of sensors actively sending data and tens of thousands

of applications deployed in the cloud on distributed architecture. Underlying that is a distributed dataflow component architecture which contains the translation on a lower technical layer of what the ecosystem partners co-create as applications. This efficient and scalable collection of component graphs processes all the data end-to-end from the sensor to the visual application in real time.

FAST EXPLOITATION OF RESULTS

Telecommunications partner Alcatel-Lucent has developed SenseTale, a live public experimental DiYSE system. The underlying technology assets are currently being transferred to business units within the company for machine-to-machine (M2M) solutions.

Alcatel-Lucent also plans enhancements for telecommunications operators, making it possible to

offer cost-effective and scalable solutions to enable third parties to bring new applications to market. A typical case is the New York marathon, where the city wanted an application to track runners and so enable spectators to follow their favourite runners live on screen. A dedicated implementation worked in small-scale tests, but was not sufficiently scalable and failed in practice when the 50,000 people started running. SenseTale would be able to handle this reliably at lower development cost.

Mobile phone operator Turkcell is equally looking at DiYSE components in the M2M market. And Thales is planning to use this technology in the surveillance and emergency management market for easy deployment of reliable ad hoc systems in the field for emergency situations. However, because this is a security market, Thales predicts that exploitation could take up to five years as many different approvals are required.

Philips has developed jointSPACE, an open-source middleware architecture on its latest range of TVs that follows the DiYSE principle. It offers an open platform where people can install their own IoT applications. A minor registration application makes it possible to connect the sensors in a TV to the SenseTale platform to allow, for example, use of the TV by children to be monitored.

Other companies offering fast exploitation include:

- Archos – with remote control Android and a range of wireless accessories for home automation, surveillance and video communications;
- Finwe – extending its Key2phone for assisted living and a parking pilot;
- Neotiq – as the basis for its next-generation voice and video platform; and
- There – with novel home automation user interface concepts.

CRITICAL FOR EUROPE

With DiYSE and other European IoT projects before it, Europe has addressed some key IoT technology areas beyond what is available in the rest of the world. The adoption of IoT will change lives but acceptance by people is essential. DiYSE addresses this by offering an ecosystem which gives control to end users, developers and other ecosystem actors alike. Designers get a single horizontal platform allowing reuse of elements. The underlying technology will be used in many more applications in future.

MORE INFORMATION:

www.dyse.org

Hungary transfers the EUREKA Chairmanship to Turkey



On 22 June 2012, the 16th EUREKA Ministerial Conference was chaired by the Hungarian Minister of State for National Economy Prof. Dr. Zoltán Cséfalvay. During the conference, Ministers and government representatives from across Europe debated the future of EUREKA and saw the progress made by the initiative under the Hungarian Chairmanship (July 2011-June 2012).

The Republic of Montenegro was welcomed as the latest full member of EUREKA. Canada was also announced as the second Associate

Country while the Republic of South Korea, the most recent country to become a EUREKA associate, had its status renewed at the meeting.

Turkey's official chairmanship year began on 1 July 2012 with the country informing the EUREKA network of its work programme and the key priorities for the coming chair year (July 2012 – June 2013). TÜBİTAK, which coordinates the Turkish participation in EUREKA, envisages creating an adequate environment for international R&D activities and a corresponding work programme including the following priorities:

1. Act Global;
2. Keep EUREKA as the preferred platform for innovation;
3. More co-opetition - kick-start new Clusters and strengthen a structured dialogue with the Inter-Cluster Committee and
4. Cover the entire innovation process by addressing the innovation finance gap.

At the end of the meeting, Prof. Dr. Zoltán Cséfalvay, formally passed the EUREKA Chairmanship to the Head of the Turkish Delegation, Deputy Minister of Science, Industry and Technology Prof. Dr. Davut Kavranoğlu, and expressed his best wishes for their Chairmanship term.

Turkish EUREKA Chairmanship launch conference – EUREKA as a Global Platform for Co-opetitive Innovation

The launch conference of the Turkish EUREKA Chairmanship took place in Istanbul on 13 July 2012. The conference theme was "EUREKA as a Global Platform for Co-opetitive Innovation". A large number of EUREKA high-level representatives attended the conference as well as an impressive number of Turkish companies from all technological sectors.

The conference focused on the role of EUREKA as a global platform, the future of the strategic initiatives in EUREKA and especially on the company prospects for co-opetitive innovation. The programme included high-level keynote speeches and different panels.

In his keynote speech, the Turkish Science, Industry and Technology

Minister, Nihat Ergün, stressed the role of EUREKA in the research and development policies in Turkey during its EUREKA Chairmanship year. Turkey's participation in EUREKA projects has steadily increased during the past five years, he reminded the participants, and the trend will continue.

Lively debates took place in all four panels moderated by experts from the EUREKA Network and Turkish high-level company representatives. ITEA 2 Chairman Rudolf Haggenmüller took part in the panel on 'Future of the Strategic Initiatives in EUREKA'.

Source: EUREKA - www.eurekanetwork.org / TÜBİTAK EUREKA Chair - www.eureka.org.tr