ITEA 2

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Major ITEA 2 Events
2009 Symposium Evaluation
& PO Days 2010 in Berlin!

Healthcare & Wellbeing
The story of NUADU, AmIE and MIDAS

Focus on the Netherlands
Supporting innovation in ICT at the heart
of the economy

ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

Content

Colophon

Editorial

Fast exploitation:
spirit of our work in 2010

Just as in nature, autumn is the time of harvest for ITEA. This year, we can see this in a three-fold way. First of all, our young projects which were the result of our Project Outline (PO) days in Istanbul have now become Full Project Proposals (FPPs). Secondly, our ripe projects presented themselves in our Exhibition at the 2009 Symposium in Madrid. And, thirdly, our harvest contains the highlights of this year: the 2009 Achievement Award winners.

In all three of these dimensions, the harvest is exceptional. The FPPs submitted are exciting and resulted in an all-time record in person-years: around 4,500 in 23 FPPs. These proposals are currently being evaluated and result labelling will be announced shortly. During the 2009 Symposium exhibition, 47 projects presented exceedingly convincing stories and demonstrations. And the Award winners are outstanding examples of ITEA projects: SmartTouch — mobile near-field communication (NFC) services, a great example of fast exploitation; EPAS — interoperability of European e-payment schemes; and SODA — a major contribution to the 'Web of Objects'. The Symposium was a wonderful event which led ITEA 2 into a new dimension.

After such a satisfying harvest, the natural question is of course: "What will the future bring?" Let me remind you of my core message during the State-of-the-Union address in Madrid: The years ahead of us are years of recovery from the worst financial crisis in decades. Questions that arise are "What will be our role in this time of recovery?"; "What will remain stable?"; and "What are the new trends and challenges?". Key findings in Roadmap 3 have proven to remain valid. Societal computing, sustainability, the challenge of massive scalability and service innovation can be regarded as stable trends for the future. IT remains at the core of the competitiveness of the European economy and the wellbeing of our society.

It is essential that Europe seizes the opportunities offered by web-based services immediately: this is the 'crown jewel' of R&D in software-intensive systems and services. The focus of ITEA 2 should be on extremely fast exploitation of technology and on business models stimulating professional use of these services. 'Cloud computing' and 'software as a service' can be seen as trends which in the time of recovery may now come quicker than expected.

Fast exploitation is now the demand. SmartTouch — our Gold Award winner — has convincingly demonstrated the ability of ITEA 2 to make fast exploitation happen.

Let fast exploitation be the spirit of our work in 2010!

Having said so, I would like wish you a merry Christmas and a successful new year!

Sincerely yours,

R. Haggenmüller

Rudolf Haggenmüller

Rudolf Haggenmüller
ITEA 2 Chairman

Fast exploitation is now the demand. SmartTouch — our Gold Award winner — has convincingly demonstrated the ability of ITEA 2 to make fast exploitation happen.

ITEA 2 Symposium & ARTEMIS-ITEA Co-summit 2009

Joint event highlights

business-oriented innovation

Some 600 industrialists, researchers, public authority members and policy makers from all over Europe participated in the ITEA 2 Annual Symposium and the ARTEMIS & ITEA Co-Summit in Madrid on 29 and 30 October 2009. While the ITEA 2 Symposium focused on business-oriented innovation for the economy and society, the Co-Summit examined the drivers for open innovation in Embedded Intelligence and Software-Intensive Systems and Services to benefit European industry and society.

Fast commercial exploitation crucial

"Fast commercial exploitation of research results is essential," said ITEA 2 Chairman Rudolf Haggenmüller, opening the ITEA 2 2009 symposium. The EUREKA Clusters ITEA and ITEA 2 have been a major success, with the number of projects and partners continuing to grow. The latest project call for ITEA 2 has been the biggest to date, indicating a clear demand for investment in innovation, and there is broad support for ITEA 3 beyond 2013. Following great interest from Turkey last year, 2009 saw the emergence of Egypt as an important participant in the latest call.

While ITEA 2 deals with pre-competitive research, it is important that project partners are already thinking about how to make commercial use of the outcomes as rapidly as possible – the essence of the bottom-up EUREKA approach to industrial research. This was well demonstrated by the success already found by the ITEA award-winning near field communication (NFC) project SmartTouch, with the full scale launch of its platform in Taiwan.

Other recent ITEA successes highlighted by Prof. Haggenmüller included functional simulation in the MODELISAR project that makes it possible to design new functions in cars without having to build expensive prototypes, and the pulmonary embolism identification system emerging from the CANTATA project that is already being installed in hospitals.

Innovation in ICT resulting from ITEA projects has a key role in helping Europe recover from the global financial crisis, according to Prof. Haggenmüller. Key examples include:
• Use-oriented modelling tools for economic and business recovery;
• Advances in web-based services, where it is essential that Europe grabs the global initiative; and
• Cloud computing, while ensuring security and privacy.

The focus of ITEA should now be on extremely fast exploitation of technology and on business models stimulating professional use of the services.

Results of ITEA projects are both innovative and achieve business impact, emphasised ITEA vice-chairman Philippe Letellier. He highlighted several particularly innovative projects, including ESNA on sensor networks, PARMA on high performance computing, SIRENA on service-oriented architecture (SOA) at device level in embedded environments, HIPIP offering new fast image processing algorithms running on multiple hardware architectures and GEODES, which dealt with power issues for distributed embedded software systems that have been a major blocking point for wireless sensor network deployment.

Business impacts are especially important, added Letellier, focusing on six 'patterns for success':
1. Crossing industry sectors;
2. Creating ecosystems;
3. Gathering partners along the value chain;
4. Standardisation;
5. Fast exploitation; and
6. Development team evolution.

"Overall, ITEA delivers well," he said. Some 11 projects were finalised in the year October 2008 to October 2009 and these provided a good coverage of applications addressing societal challenges, system architecture and software engineering.

2009 ITEA ACHIEVEMENT AWARDS
Three of the projects – SmartTouch, EPAS and SODA – were shortlisted for the 2009 achievement awards for high-level technical contributions based on real European collaboration that provide significant results while promoting the ITEA programme and its goals. Presentations were made by the co-ordinators of all three projects. The final selection involved both the ITEA 2 Steering Group and the Board Support Group.

SmartTouch received the gold award for the simple touch basis and interactive user orientation of the platform and concepts it developed, based on near field communication (NFC) short-range wireless connectivity. The concept has already gone into full-scale use with Taiwan Mobile, reflecting the ITEA ambition for fast exploitation.

The silver award went to the EPAS card project that has opened up the single European payment area and has resulted in the first standard for payment card protocols as ISO 20022. Such global recognition is essential for worldwide adoption of European innovations. The bronze award went to the SODA embedded web devices project which has made a major contribution to the 'web of objects' and already having an important effect in boosting product integration for consortium members.

Co-Summit bolsters co-operation between key European programmes

Co-operation between ARTEMIS and ITEA 2 is crucial according to ARTEMISIA Association President Klaus Grimm at the start of the Co-Summit on 30 October. ITEA chairman Rudolf Haggenmüller strongly concurred: "While the two initiatives operate and are funded in different ways, both rely on industrial leadership to establish the future direction for a competitive ICT industry in Europe".

The EU IST advisory group ISTAG backs this in its latest report to the European Commission. "ISTAG believes the Commission should get more involved in the EUREKA ICT Clusters, for example by providing top-up funding, but without changing the governance of the Clusters themselves," added Prof. Haggenmüller.

Closer co-operation was endorsed by Tom Clausen of the European Commission, talking on behalf of Thierry van der Pyl, Chair of the ARTEMIS public authorities' board and director of components and systems at the European Commission. "We need to be ambitious and set tough challenges for the future," he said. "Industrial strategy should be endorsed at the highest level as industry is in the driving seat."

SECOND TIME AROUND
The Co-Summit was the second such event and keynote presentations came from Ralf Herrtwig of Daimler on the 'Interneted' vehicle, involving vehicle communication eco-systems, and Jean-Francois Lavignon of Bull on applications of massive scalable parallel computers. A series of parallel sessions dealt with multimedia & communications, e-payment, recalibrating the ARTEMIS strategic research agenda and centres of innovation excellence.

Walter Mönig, current chair of the EUREKA high level group, called for a new innovation push for research and development in Europe, because new growth can only be based on new ideas and smarter products. "This requires a coherent and broad-based industrial and innovation policy that sets out adequate lines of support," he said.

"There are now – with the EUREKA Clusters and the EU Joint Technology Initiatives – two similar co-operation and funding mechanisms. There is a need for a clear definition of the interfaces between the schemes. The future of the Clusters is of vital importance, not only for EUREKA, but also for the competitiveness of European industry in several strategic sectors. During our EUREKA Chairmanship, we aim to find a long-term viable solution for this question."

MINISTERIO
DE INDUSTRIA, TURISMO
Y COMERCIO

Symposium sessions

The Digital Economy
by Piotr Stryszowski* (OECD) and Jesús Bermejo (ITEA 2 OSAmI)

Today, almost all sectors of a modern economy rely to a greater or lesser extent on software. The recently observed boom in software innovation has resulted in a constant change in the software landscape. The expansion of software opens a new era in the role that machines play in the modern world, an era that can be called the 'Digital Economy'. This session focused on the positioning of ITEA and OSAmI R&D project in the context of these rapid changes and the resulting economic, policy and R&D perspectives.

The first speakers were OECD delegates Hisashi Yoshikawa, Deputy Director of the Directorate for Science, Technology and Industry, and Piotr Stryszowski, Economic Policy Analyst, who presented the findings from the recently published OECD Study on Software Innovation. The next speaker was Christer Gundersen, manager from the Norwegian Open Source Competence Centre

Friprogsenteret, who outlined some relevant software-related policy lessons in the case of Norway. Finally, several members from ITEA OSAmI project presented their vision and project approach starting from the ITEA Roadmap.

All presenters stressed that the expanding landscape of software is changing dramatically the ways current economies operate. For example, cloud-computing technologies remove barriers to fast innovation on a global scale and new software-based service chains, reshuffle the ways markets used to operate. The speakers stressed that these changes pose new types of challenges for policymakers.

As society enters the Digital Economy, it depends more on ICT and other products driven by software to carry out civic, economic, and social activities. It also means that users themselves — individuals, companies and governments — will play a growing participatory role in driving this innovation. Policymakers will need to recognise new areas that will become crucial for the transition to the Digital Economy, such as the issue of standards or intellectual property rights. Yet it is important to note that, in many cases, there is no

universal solution and the optimal policy will depend on local conditions.

The essential difference in nature between physical and digital entities led Nicholas Negroponte to acknowledge that the transition may not be smooth as most decisions are taken currently without a real understanding of the Digital Economy. We are emerging from one of the most profound crises in modern economic history. This seems to have been a consequence of the decoupling between physical and digital innovation in one of the market segments with highest penetration of software that was not properly monitored.

A common challenge for OECD and EUREKA communities is contributing to sustainable economic development optimising societal benefits of technology. Without any doubt, software seems to be to be in this roadmap. The session contributed to a better understanding of the Digital Economy as economic, policy and R&D visions have to be aligned to address the challenge.

The opinions expressed in the text are those of the authors and do not engage the OECD or its member countries.

ITEA as a vehicle towards standardisation
By Dr Colin Willcock

The target of this session was to highlight ITEA involvement in standardisation and how this has helped deployment and impact in the market. The key areas covered were the contribution of ITEA projects to standards definition, implementation and deployment. As well as traditional standardisation organisations, this session also considered the creation of de-facto industrial standards and the creation and use of open-source communities.

Working with the traditional standardisation organisations was covered in the presentations of Pekka Abrahamsson from the University of Helsinki (IEEE

standardisation; opportunities and lessons-learned), Jean Gelissen from Philips Research (ISO-like standardisation; experience from the Trust4All and Metaverse1 projects) and myself (ETSI standardisation; bringing new technologies to European industry).

The creation of de-facto industrial standards was covered in the presentation of Dr Friedhelm Stappert from Continental Automotive GmbH (Creating a de-facto standard; applying the results of the EAST-EEA & TIMMO projects). The use of open-source communities was covered in the presentations of François Jammes from Schneider Electric (Wide adoption of a technology through standardisation and open

source) and Kai Hackbarth from ProSyst Software GmbH (The standardisation activities of OSAMI).

In summary, the key issues raised in this session were that it requires time to get things standardised, therefore this is not something that should be started at the end of a project but rather planned and taking place from the beginning. It also requires effort to get things

standardised as typically participation is necessary in standardisation meetings for a significant time span. This effort needs to be realistically planned into the project.

As these presentations showed, there is a range of possible directions associated with standardisation that a project can use singly or in combination. The correct choice of path is very project and domain specific. Finally, and most importantly, what is clear from the presented projects is that standardisation can greatly increase the impact of ITEA projects.

Multimedia and 'new' communications
by Patrick Schwartz

More than 70 people attended the 'Multimedia and communications' pa-rallel session. Presentations were made by industrial, SME and academic partners: Atos Research, Fraunhofer HHI, HPC Project, Institut TELECOM, Pace and Thomson Grass Valley.

An introduction on the importance and achievements of multimedia projects in ITEA during the past ten years was followed by presentations of future perspectives in the multimedia domain in three main directions:

1. Use of IT technologies for multimedia:
   – Pierre Fiorini from HPC project explained the evolution of multimedia thanks to IT technologies

such as non-linear editing, storage-based systems, semantic information enabling multimedia search and, finally, convergence of audio/video and IT systems; and
   – David Salama Osborne from Atos Research explained the use of IT technologies and metadata handling for major events such as the Olympic Games with huge volumes of processed content.

2. New formats and new visual perceptions (HD, 3D, 6K formats):
   – Dr Ralf Schäfer of Fraunhofer HHI provided an exciting presentation showing the challenges in video technology over the coming decade with a strong tendency towards higher resolutions, enabling immersive and 3D services as well as 3D video communications and the interest of format-agnostic metadata-based production and delivery up to high resolution (6K); and
   – Issa Rakhodai from PACE showed short- and

mid-term evolutions on visual perspectives such as Full HD and 3D TV formats, addressing the standardisation aspects as well as the user acceptance of these new 3D formats

3. Media convergence and hybrid broadcast broadband TV (HBBT):
   – Jean-Hugues Lauret of Institut TELECOM presented the pan-European specification for interactive TV applications. This should provide seamless TV experience across broadcast and broadband networks with targeted applications such as enhanced TV, interactive ads, voting and betting.

The presentations were followed by an interesting panel discussion with the audience around the traditional linear TV model competing with the non-linear on-demand model offered by major web-TV services such as Hulu on your PC.

E-payment
by William Vanobberghen (Groupement des Cartes Bancaires/EPASOrg)

The e-payment session focused on the recent growth of payments using state-of-the-art channels of communication — Internet, mobile phones, contactless card payments, etc. — in the framework of the continuing deregulation initiated by the European Commission and the European Central Bank.

The objective was to share the testimony of different actors in this field — such as telecommunications operators and payment transactions processors — to understand better how this disruptive process could take place in Europe in the coming years and how it may affect the traditional payments market.

The panel was made up of experts belonging to different areas of information technology developments and R&D in Europe. The session started with three presentations:

1. Michael Petiot is responsible for ATOS Worldline business development in Spain and Latin America, and has experience in electronic payments, particularly pre-paid cards and mobile payments. He focused on the issue of identification management for e-payments.

2. Alan Moss is Vice-President of Marketing and Business Development at Hypercom in Madrid and has been in the payment business for 11 years. He is also Chairman of the General Assembly of EPA-SOrg — the newly created structure dedicated to the evolution of the EPAS standards. He addressed the issue of e-payment and cards, the main industry drivers for the card business and the various recent initiatives within this industry to achieve an open market for card payments in Europe.

3. Jean-Pierre Tual is Director of Industrial Relations, Technology & Innovation at Gemalto and has experience in managing identity and near field communication (NFC) applications. He is also a member of the MEDEA+/ CATRENE applications steering group. He discussed the issue of mobile contactless payments in the framework of ITEA 2.

The numerous questions showed the strong interest in the issues developed during the presentations, namely: the evolution of e-payments in Europe and worldwide — a relatively important delegation of representatives from Egypt attended the session — as well as the issue of identification through mobile phones and the management of identities by trusted third parties.

Supporting innovation in ICT at the heart of the economy

Dutch innovation agency SenterNovem is strongly committed to information and communications technology (ICT). Its Point One programme offers a public-private partnership supporting industry, research organisations and universities at national level. And it believes in international collaboration with major involvement in EUREKA and the ITEA 2 Cluster. SenterNovem provides flexible support to the many Dutch players in the ICT domain, from able Dutch SMEs to Dutch world leaders in ICT. Video-surveillance system specialist VDG Security can testify on this.

ICT is an important part of Dutch industry and one of the most important sectors for the economy, according to Willem Zwalve, Acting Director SenterNovem. "We are not strong in all sectors of course, but we have many leaders, such as ASML, NXP and Philips, as well as a large number of smaller companies playing in niche markets globally. Altogether we have a broad base. Our strong point on the software side is in embedded systems, where the country really excels."

The Netherlands has developed a national programme for this sector. Point One focuses on micro-/nano-electronics, embedded systems and mechatronics clusters and is a public-private partnership between industry, universities and the public authorities. Total effort of the progamme is nearly €1 billion with more than €300 million of government funding over the period 2006 to 2012.

INTERNATIONAL COLLABORATION CRUCIAL
The Netherlands also sees ICT as a global business, so it focuses strongly on international collaboration and is very active in the EUREKA ICT Clusters and the EU joint technology initiatives (JTIs). "We think it is very important to bring the best companies together so that we can make a difference in the world," says Zwalve.

SenterNovem allocated almost €100 million to international programmes in 2009. The Netherlands has been an active participant in EUREKA since the start – always ranked at three or four with the big countries – and allocated €7 to 8 million to ITEA 2 alone last year.

"EUREKA is a nice scheme as it is bottom-up and so can serve industry well, and cover all kinds of topics," adds Zwalve. "The EUREKA Clusters have been very successful and we are still building on that. The newer EU JTIs are different, offering more a community setting with regard to the evaluation of the proposals and all the procedures."

Zwalve sees a clear future for both approaches as there are hardly any products that do not now involve ICT-based components or software. "ICT is at the heart of our economy and having a position in this area is very important for the future of Europe. It makes sense to have this type of collaboration in Europe with the three party set up: industry, Member States and the European Commission."

The challenge is to make this collaboration work better. It is necessary to have a good delineation between the JTIs and the EUREKA Clusters because it is confusing if there are two programmes addressing the same issues. "We need one vision for two programmes. ITEA and ARTEMIS need to work together – not easy with many countries and many players involved."

SMEs OFFER TECHNOLOGICAL EDGE
Participation in ITEA helped rapid growth at Dutch SME VDG Security. In just three years, the company's R&D department increased from eight to 20 people now, while the company has been able to widen its product offer with video-surveillance management systems incorporating a range of additional recognition functionalities. At the same time, the company is convinced that as an SME it brought a technological edge and creativity to the project that some big companies find more difficult to achieve.

"We got involved in ITEA by accident," says Rick Koeleman, head of R&D at VDG. "We discussed setting up a similar project to the ITEA CANTATA project with the technical university in Eindhoven (TU/e), with funding from the Dutch government. One of the ITEA partners stepped out of CANTATA and we were asked if we wanted to join. We said yes."

VDG had no direct contact with ITEA – it had heard about EUREKA but was not particularly research oriented then. It was just setting up a more 'mature' R&D department – the reason why it had been in contact with TU/e.

"Our first focus was to try and obtain financial support from the government to develop new product lines,"

says Koeleman. "The second was through our contacts with TU/e, we saw that knowing people in the research community really helped to get new and fresh ideas.

INTEGRATING RECOGNITION ALGORITHMS
VDG started in 1996 as a distribution company for CCTV products. Customer demand led it to buy a small company making one of the first digital video recorders, enabling it to make its own digital recording system for video surveillance and management systems.

"We started to integrate video-content analysis (VCA) algorithms into our systems – we were one of first to have licence-plate recognition totally integrated in the video-management system used by petrol stations. We made a coupling to the cash system used in filling stations all over the world, providing a way to link the actions at the pump, the cash register and our video." VDG subsequently developed a prototype video-surveillance system integrating facial recognition.

Work in the CANTATA project took this a stage further and has helped form the basis for VDG's current video-management system, which offers fully integrated licence-plate, facial and object recognition. This improves security markedly – enabling problems to be spotted quickly as well as enabling forensic analysis of incidents subsequently from the digital recordings. And VDG has developed a new video camera with specially designed software to improve surveillance operations, being launched in December 2009.

The new video-surveillance system is already being installed to cover all 38 metro stations in Charleroi, Belgium. It will handle several hundred cameras and be used to monitor the whole network centrally, improving detection and follow-up of security-related incidents. And a complete installation with 350 cameras and 150 channels of VCA was provided for the recent Formula One race in Dubai. "The major German company that was supposed to install the system worked on it for nearly three years before admitting it could not manage it," says Koeleman. "We put together a complete system in five or six months."

WORKING EFFECTIVELY IN ITEA
According to Koeleman, SMEs can work effectively in ITEA projects. "We realised we were in the presence of the big boys and had to react as professionals. If you act professionally, then everybody will listen to you – or not if they have a good reason!"

He is convinced SMEs add value to ITEA projects.

"SMEs work more on the edge of technology because they have to. The only way an SME can make money is to be better than an extremely large company that has a hundred engineers trying to do what we do. We have to think further ahead and do more with fewer resources. This makes SMEs a bit more creative."

VDG is already involved in a new ITEA project with many of the same partners. VICOMO is a successor to CANTATA, dealing with new problems that arose during CANTATA that still need to be solved.

"Participating in such European projects is a good way to get to know people and gain more technical knowledge," he adds. "We've not looked at EU Framework Programme projects – we are not that big. The overheads of such projects – though small – limit us to three or a maximum of four projects, otherwise we would all just be doing the paperwork!"

Project results • NUADU

Providing cost-effective
and efficient healthcare support

The NUADU project explored services and applications to facilitate cost-effective and efficient healthcare and wellbeing. Its objective was ICT-based solutions to increase the efficiency of healthcare services, reduce treatment costs, decrease the need for hospitalisation of the chronically ill and prevent illnesses by detecting people at risk, promoting a healthy lifestyle and enabling people to manage their personal health. NUADU developed a series of solutions for elderly people at home, mobility for disabled people, health promotion for the young and obese, and chronic-disease management in case of heart disease or diabetes.

"We covered a wide range of healthcare and wellbeing applications from healthy people who want to retain their health, to those who are chronically ill, have a medical problem or need revalidation after an operation," explains NUADU project co-ordinator Peter van der Meulen of Philips Applied Technologies. The project involved 20 partners from equipment and system suppliers, to medical service and insurance companies in six countries.

"Wellbeing and personal healthcare are becoming more and more important, on one hand because of the higher demand – among other reasons because people are living longer – and on the other because there are fewer people available to provide help," says van der Meulen. "So there is a need for technical support; and industry can help with tools, equipment and also better organised services."

intelligent systems for prevention and monitoring of cardiovascular diseases. And it worked with the open industry Continua Health Alliance, which involves more than 200 healthcare and technology organisations in establishing a system of interoperable connected health devices.

SUPPORTING STANDARDISATION

Some new sensors were developed, but an important impact was in contributing to standardisation in areas such as the type of data provided by personal sensors to the monitoring service. Data transfer now uses proprietary formats, making it difficult to share between different systems. NUADU worked on new open software standards.

Netherlands, and remote monitoring of heart patients in Spain.

So it was clearer than in most such technology projects that there is a strong need for such solutions in the home healthcare and wellbeing market. While a rapidly ageing population is feeding demand in Europe, the solutions will also have a major impact in the USA and Japan.

COMMERCIAL SERVICES AVAILABLE

"Success in NUADU has already led to the commercialisation of services such as the Direct Life life-style coach now being marketed by Philips," says van der

Photo: Philips

Photo: Philips

NUADU
ITEA 05003

Peter van der Meulen
Project leader, Philips Applied Technologies

Partners
Alcatel-Lucent
CEA/List
Coronaria
C2 Innovativ'Systems
FIOH
Firstbeat Technologies
HUT / HEMA
Institut TELECOM
IST
ITACA
MEDeTIC
Nokia
Pace
Philips

Polar Electro Oy
Streamvision
Telvent
Tuulia
Universidad Politécnica de Madrid
Universidad Politécnica de Valencia
Università del Sannio
VTT – Technical Research Centre of Finland

Countries involved
Finland
France
Italy
The Netherlands

Spain

Start of the project
April 2006

End of the project
December 2008

Project website
www.nuadu.org

NUADU investigated a range of quality of life, healthcare and personal health needs to find out what benefits could be provided by technology and how the technology would be accepted by users. Many applications were evaluated and potential products identified.

The consortium co-operated with other projects both within ITEA and outside at European and national level. A joint workshop was held with AmIE during the ITEA 2008 symposium to exchange experiences. Sensor elements were shared with SmartTouch. NUADU collaborated with the FP6 MyHeart project developing

"We also evaluated intermediate hubs such as i-phones to see how more general tools can be adapted to wellbeing applications," adds van der Meulen. "And we looked at how to install the monitoring equipment. It is difficult to teach ordinary people how to use sophisticated tools, so it is necessary to invest in making it much easier to do so. NUADU drew up guidelines about how to achieve this."

While partners were mainly healthcare equipment and services suppliers, it was clear that there are high demands from citizens. Therefore a major element was a focus on pilot projects, bringing solutions directly to users for evaluation. Seven pilots were involved covering healthcare self-management in Finland and Spain, independent living for the handicapped, elderly and stroke victims in France and the

Meulen. "This determines how much you move and is a measure of how you are keeping fit. A service provider then offers advice: complimenting you on the good job you are doing and advising on how to improve further."

Nokia is working on its own platform to make it better enabled for healthcare applications. And Finnish research centre VTT, already strong in this area, is continuing its work on tooling and applications. Moreover Philips and VTT are co-operating in the InnoHub innovation hub in Helsinki to continue such projects together. Many of the other partners are ready to develop and market more new products based on the knowledge acquired.

Maintaining quality of life
for the elderly in their homes

The AmIE project set out to develop ICT-based solutions to improve personal wellbeing by helping older people overcome isolation and loneliness while enabling them to stay as long as possible in their own homes. The intention was to provide fully configured systems, adapted to specific users in their existing situations, which were acceptable and understandable without being intrusive.

AmIE
ITEA 2 06002

Ricardo de las Heras Martín
Project leader, Telefónica I+D

Partners
Alcatel Bell
Audio Riders
City of Oulu
Fagor Electrodomésticos
Ikerlan
Inabensa
Indra
Ingema: Matia Gerontological
    Institute Foundation
In-Ham
Mawell
Mextal
Mobilera
Philips CE iLab

RGB Medical Devices
Robotiker-Tecnalia
Soneco
Telefónica Investigación y
    Desarrollo
Technische Universiteit Eindhoven
Vrije Universiteit Brussel
VTT – Technical Research Centre
    of Finland
Yrjö ja Hanna – Säätiö/
    Yrjö&Hanna
Zuidzorg

Countries involved
Belgium
Finland
The Netherlands
Spain
Turkey

Start of the project
May 2007

End of the project
January 2010

Project website
www.amieproject.com

"Wellbeing in our case means ensuring a good quality of life at home," explains AmIE project co-ordinator Ricardo de las Heras Martín of Telefónica I+D in Valladolid, Spain. "AmIE set out to increase autonomy for the elderly with security, offering tele-monitoring and home support. It provides information about the daily life of the user directly to doctors and caregivers, creating an intelligent ambience, so they know what is happening in the user's house."

Information and communication technologies (ICT) can help the elderly to overcome isolation in their own homes, increasing the opportunities to keep contact with friends and extending their social networks as well as permanent access to qualified health personnel. ICT can also provide applications to assist seniors in everyday living such as electronic alarm systems, tele-health monitoring or home automation to control heating, lighting and fridge contents remotely.

However, many older people face barriers in exploiting ICT products, services and applications to their full potential. Some obstacles are physical impairments – 21% of the over-50s have hearing, vision or dexterity problems, making it difficult or impossible to use standard equipment. To break down such barriers, systems manufacturers need to think much more about usability and accessibility when designing systems for ageing citizens.

SPECIFICALLY TAILORED SOLUTIONS
AmIE set out to develop a solution where interaction with elderly is not standard or roughly configured, but adapted specifically to user's needs and to each situation, for optimal acceptance and understanding. The design is based in the principle of non-intrusiveness so that the daily life of the user is not affected by the system elements. This personalized interaction is reached using modelling techniques, creating a specific profile for every user that defines future interactions with the system.

ITEA 2 provided the ideal opportunity to develop the project and work with a wide range of partners in other countries. "It was the perfect framework – and we have had good support from our public authorities," de las Heras Martín says.

The project involved Belgium, Finland, the Netherlands, Spain and Turkey. Partners included research organisations, e-health and tele-medicine companies, and end users through gerontology institutes. Telefónica I+D was involved in user profiling, system's intelligence and establishing user preferences – such as priorities

for messages to be displayed on a loud speaker or on a screen – as well as in communications between home and remote centres.

AmIE is focused not so much on new technologies but rather on how to put things together – integrating different offers on a common platform, while adding some specific elements to provide tailored interaction to users. Such additions included localisation services in the house so the system knows where to send/display messages.

A series of demonstrators included:
- Monitoring sleep quality – does the user roll continually or is he/she restful;
- Measuring vital signs in tele-medicine;
- Organising the users service diary;
- Preparing laundry or shopping lists;
- IPTV services for social interaction with relatives and friends;
- Relaxing activities before sleep to increase rest quality and sleep monitoring;
- Music playing according to user's mood (Sound Vitamins); and
- Future home user interfaces.

MAJOR IMPACT EXPECTED
"We expect the success of AmIE to have a major impact as it is the first time all these services have been fully integrated – previous projects were more limited in scope," says de las Heras Martín. "In addition, the way we react to users according to their personal preferences is very relevant to getting such products to market; adapting services to individual users – such as taking into account their hearing levels – is a real innovation."

The target market is in tele-care and tele-medicine. Each partner will also try to exploit the results according to their own business plans. For example, Telefonica will exploit it for other products as well – including for home automation systems. Other partners may well look at use in hospitals.

The success of AmIE is important for Europe with its rapidly ageing population. "This type of service will have increasing demand," says de las Heras Martín. "We will save governments a lot of money by helping people stay at home and live autonomously for longer."

Ongoing project • MIDAS

Ensuring wellbeing for
an ageing population

The ITEA 2 MIDAS project has set out to develop complete and intelligent integrated solutions providing customised support to elderly and disabled people according to their specific situations. It will make use of a range of different sensors, actuators and connectivity technologies to provide aid in a non-intrusive and respectful way. This will be achieved using friendly adaptive interfaces, both in the home and outdoors, designed to overcome the natural scepticism and unease of the elderly and handicapped people about technology.

"Ageing is a huge and growing challenge," points out MIDAS project co-ordinator Laure Chotard of France Telecom - Orange Labs. "Around 20% of the EU population is now over 65 and this will increase drastically up to 25% in the next 20 years." The prevalence of disability also grows significantly with age.

All this affects individuals, families, communities and nations, and may have profound consequences for the economies of European countries

— and all other developed countries around the globe. It will not only make it more and more difficult for families to take care of an increasing number of ageing relatives but also impact the cost of the medical and social care system.

STAYING AT HOME
MIDAS is concentrating on wellbeing through assisted living — making it possible for the elderly and disabled to feel comfortable in their own domestic environments and able to stay at home as long as possible.

The project involves 19 partners from France, South Korea, Spain and Turkey, including end-user representatives such as hospitals, healthcare organisations, consulting companies, research organisations, technology providers, robotics companies, telecommunications operators and small and mediumsized enterprises (SMEs) in the area of tele-assistance.

"We are focusing on how we can exploit technology that makes people feel more confident and enables them to stay in their social framework," says Chotard. "Going into institutions often leaves them feeling cut off." MIDAS will contribute to the quality of life of the people concerned by providing them with solutions in the home and outdoors in the car environment, where slowing reflexes can affect ways of driving.

One key area will be to improve communication as it is important to be able to stay in touch with others when living alone. "We will focus on scenarios such as switching from a TV set environment to a credible interface for an entry phone for a conversation," she says.

"Our objective is to make all these components talk together. Imagine watching TV and your care giver sends you an SMS — technology can enable the SMS to appear on the TV screen or the TV can provide an alert that there is a message or a call coming in."

Other potential cutting-edge applications include interactive 'smart' surfaces that can be used in collaborative way — for example providing direct contact on medication, making appointments or displaying a diary on the most appropriate device. Part of project is context management to enable the system to send appropriate information to the right place, depending on where the user is at the time.

MONITORING ELECTRICAL USE
Security assistance is another facet: monitoring activity through electrical signals. "If you switch on your coffee maker, it is reasonable to suppose that you are

in front of the machine," she explains. By correlating the information coming from the electrical power system with other information from ambient sensors or video cameras, it is possible to create a more precise picture of the situation.

"This poses some difficulties in terms of privacy and agreement will be necessary to establish ethical guidelines," adds Chotard. "Images are particularly important; it is possible to recognise emotions — such as blinking when tired at the wheel of a car." This is more difficult in the home but it would be possible to locate a camera near the TV set for example. This would not be intrusive but would be able to provide some indication of someone not moving in front of the TV over a long period.

"We are not trying to replace human contact but we want to provide services to help society through end-user representatives, families, care givers, doctors and other medical services that are working for the well being of the person concerned."

One of the areas targeted is cognitive stimulation. "We are working on mental training using a questionnaire elaborated with our Grenoble hospital partner in France to help determine the level of dependency," says Chotard. This approach is used by geriatric departments with the score helping establish the evolution of the pathology. Questions would be accessible on the interactive smart board — for example with cubes to be put in the right place to answer.

"Such interaction is very easy and can target all the population concerned, which can be grouped into three sections: active, disabled and in between — with some cognitive or physical impairment."

Moreover, the score could be linked with the ambient environment to determine the real situation. For example, when asking whether the person watched TV yesterday, the doctor can crosscheck with the electrical use of the TV. Such crosschecking is not possible in a hospital or the surgery.

ADAPTING TECHNOLOGIES
Much of the work will make use of existing equipment such as TVs but develop additional functionalities such as sending information. Interactive smart surfaces exist, but new software is being developed for assisted living. Medication follow-up through the smart board or by phone does not yet exist, so software applications and technology provisions in terms of connectivity, networking and integration of existing sensors will require development.

"We can't do everything in this project," says Chotard. "Our objective is to obtain proof of concept through demonstrators with elderly people." These will include daily life assistance and health prevention with security and alert, driving interaction and assistance, health monitoring or telemedicine and medication follow up — these could be linked.

"Technology is available but we still need to define use cases," she adds. Functionalities in the HOME scenario could include:
• Communications with environment and relatives:
  - Contributing to video-conference facilities; and
  - Providing access to content based on multimodal interfaces.
• Everyday assisting living:
  - Supervising important diary tasks in a user's life; and
  - Maintaining a social link, making it possible to stay in touch with their communities of interests without the need to be technologically efficient and so increase the user's autonomy; and
• Healthcare:
  - Determining and preventing accidents by measuring the activity of fragile people in their daily life; and
  - Providing localised assistance for the patient to allow he/she to move in safety.

Functionalities in the DRIVING scenario include:
• Providing motivation assistance,
• Acquiring information with non-intrusive sensors about the health or behaviour of a car driver through a multimodal interface; and
• Simplifying driver interface through multimodality.

BUILDING ON EXPERIENCE
Some of the MIDAS partners have been involved in other earlier and current wellbeing projects — for example Spanish telecommunications operator Telefonica was involved in AmIE. "We are targeting the same area as AmIE but in a different way," points out Chotard. "Our user cases are the most important demonstrations of our approach.

"We are still at an early stage, seeing what is relevant and usable and what is not. The project is set to end in 2011; we would hope to have the medical outcome in use fairly soon afterwards."

MIDAS
ITEA 2 07008
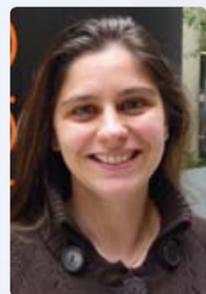
Laure Chotard
Project leader, France Telecom - Orange Labs

Partners
Apif Moviquity S.A.
CEA LIST
CITIC - Centro Andaluz de Innovación y Tecnologías de la Información y las Comunicaciones
Energy Sistem Soyntec
France Telecom
Fico Triad S.A.
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KIT - Korea Information Technology Valley Co. Ltd
LI2G-CHU Grenoble
Morgan'Conseil
Robosoft
Robotiker-Tecnalia
Siel Bleu
Telefonica I+D
Thales Alenia Space

Countries involved
France
South-Korea
Spain
Turkey

Start of the project
October 2008

End of the project
September 2011

Project website
www.midas-project.com

ITEA2
Project Outline
Preparation Days
2010

Σ! 3674
INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

Berlin
1-2 February 2010

Opening of ITEA 2 Call 5: 1 February 2010

The PO Preparation Days: a key opportunity to brainstorm and prepare!

To help you prepare a Project Outline (PO), brainstorm about new project ideas, locate potential partners, form consortia, and find out more about the specifics of the Call, we are organising PO Preparation Days on 1 and 2 February 2010 in Berlin, Germany.

As a EUREKA Cluster programme, our approach is intergovernmental, bottom up and industry driven. All member countries in the EUREKA initiative give financial support to ITEA 2 projects and ITEA 2 is open to partners from large industrial companies, and small and medium-sized enterprises (SMEs), as well as research institutes and universities. Our projects involve at least two companies in two different countries – according to the EUREKA rules.

Our Calls for projects involve a two-step procedure with continuous involvement of the relevant national funding authorities. First, short Project Outlines are submitted. For those outlines approved, the next step is to submit a Full Project Proposal. These 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 fifth 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 2010
These days are organised to help you prepare for this fifth Call. Participation is free of charge and open to all those with an interest in our fifth Call.

During this two-day meeting interested companies, research institutes and universities with innovative ideas for projects in ITEA 2 are brought together which makes it a unique starting point for organisations to form successful consortia and start preparing POs for Call 5!

In short, this meeting will enable you to:
- Receive general information on ITEA 2 and the project call process;
- Present your idea in a poster session and an elevator pitch;
- Discuss and brainstorm about project ideas in workgroup sessions;
- Contact other interested parties/potential partners from all over Europe; and
- Form consortia and start preparing project outlines for the fifth Call.

If you are interested in participating in this two-day event, go to our website and fill-in the online registration form – **www.itea2.org/po_days2010**

ITEA 2 Call 4
an all-time high!

The closure of this year's Call – the fourth – was on 2 October. 23 Full Project Proposals (FPPs) were submitted, showing an all-time record: some 4,500 person-years. The evaluation of the Call 4 FPPs is in progress and the final labelling decision will be made on 9 December. The project consortia will be informed about the labelling decision soon afterwards.

CANTATA
(ITEA ~ 05010)

Advanced digital video content analysis improves medical diagnosis, video surveillance and home entertainment

TIMMO
(ITEA 2 ~ 06005)

Managing in-car timing constraints

WELLCOM
(ITEA 2 ~ 06030)

Turning TV watching into a personalised interactive experience

CANTATA
(ITEA ~ 05010)

Egbert Jaspers, ViNotion,
The Netherlands

Advanced digital video content analysis improves medical diagnosis, video surveillance and home entertainment

The amount of digital video content now available makes automated interpretation essential to ensure optimal use of data in the shortest possible time. The CANTATA project set out to make digital video processing systems content-aware. Advanced digital technologies and greater system power enabled the development of robust analytical algorithms for content interpretation, a scalable platform facilitating analysis across a wide range of applications, content presentation that adapts to the device, user and content, and a common understanding of quality levels in content analysis. Systems demonstrations in surveillance, medical and domestic applications have already led to commercial products.

Digital video content is being adopted widely in a variety of business domains as well as by home users. Massive expansion of video applications over Internet and corporate networks is becoming a reality and additional content-analysis-based applications are about to follow. As a result, the quality and reliability of content-analysis features will become an important discriminating factor.

Many of these applications involve transferring and interpreting huge amounts of data:
• In *surveillance*, multi-camera security installations function 24 hours a day, 7 days a week to secure areas, prevent incidents arising and enabling subsequent analysis;

• In *healthcare*, an increasing amount of graphical information from for example high resolution 3D scanners is being used for diagnoses, putting a high stress on the medical experts involved; and
• In the *home*, consumers have access to virtually unlimited multimedia content, particularly over the Internet.

However, state-of-the-art multimedia systems have no notion about the content; some form of human interpretation is required currently to use or enjoy such systems selectively. So, there is a growing need for systems that are aware of the content and can use this knowledge to establish an action or control the environment autonomously.

BRIDGING THE GAP BETWEEN THEORY AND ECONOMICS
CANTATA set out to bridge the gap between academic research into such content analysis and economic feasibility. Developments included: algorithms for content analysis in different domains; an analytical and presentation platform suitable for all areas; visualisation and user interaction, focusing mainly on home consumers; and methodology for validation of content-aware products.

Key innovations were demonstrated in home multimedia, video surveillance and medical diagnostics and have been exploited commercially very quickly after the end of the ITEA project.
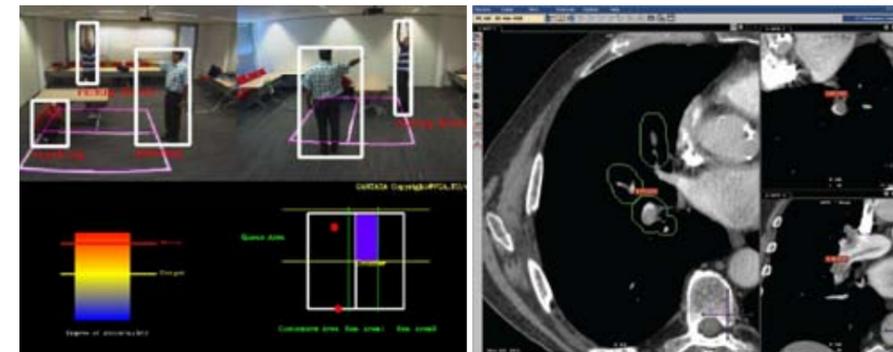
Home multimedia
The volume of multimedia content in the home is growing daily with broadcast services over the airways, by cable, by satellite or increasingly over the Internet – a fast-growing alternative offering a wide range of exciting new services – as well as commercial and personal recordings. However, customers want a service that gives them personalised viewing of what they want, when they want it, and paying for what they watch, combined with easy navigation.

CANTATA therefore developed a content-aware interactive TV system based on a flexible arrangement of computer tasks on multiple information-processing components that allowed smooth integration. The system offers a host of new features deploying awareness of what the multimedia content is actually about. For example, it can automatically summarise broadcast news and sports items, showing only highlight such as goals. Moreover, the TV recommends content, depending on the user's mood and preferences as well as on multimedia content played before.

The result is a significantly improved user experience and the concepts developed are already being incorporated in commercial products for home entertainment, such as an content-aware IPTV set-top box from Ortikon.

Video surveillance
Security officers in video-control rooms face an ever-increasing number of screens that are just not possible to control without some form of help – especially as it is not possible to concentrate on such displays for longer than around 20 minutes. Embedded content-awareness technology can offer this assistance. CANTATA developed an intelligent surveillance camera providing advanced video content analysis combined with state-of-the-art video compression for streaming over Internet. And the project resulted in a series of robust software algorithms able to recognise automatically the posture of human beings, allowing detection of abnormal behaviour. The results were demonstrated in a bank-robbery scenario.

Such modelling of video content allows robust behaviour analysis and solid reasoning for decision making. The results of CANTATA have already been incorporated into VDG Security video-surveillance systems offering multiple camera and multiple video-content analysis channels. Notable applications include a 300-camera system covering all 32 stations in the Charleroi metro system in Belgium, offering central control and fast reaction to security incidents. And a 350-camera system that was installed in time for the recent Dubai Formula One race – a project that took five months, replacing a previous supplier that had

tried for over two years to build such a system but had admitted defeat.

Moreover, VDG Security has also just launched its intelligent surveillance camera.

Healthcare
Deep-vein thrombosis and its fatal complication pulmonary embolism pose serious health problems, affecting some 2.5 million people in the EU and the USA each year with fatal results in a third of cases. A pulmonary embolism is particularly difficult to detect though timely diagnosis and appropriate therapy can reduce mortality to under 10%. Multi-detector computed tomography (MDCT) has radically improved diagnosis – not only directly by fast identification of pulmonary embolisms but also often by providing an alternative diagnosis when such embolisms have been ruled out.

While MDCT is fast and patient friendly, it requires the radiologist on call to check hundreds of images – a time-consuming process subject to human failures. CANTATA developed computer assistance that makes quantification an acceptable part of the diagnostic routine. The system not only detects pulmonary embolisms automatically but also provides a quality-critical compressed image for transmission over bandwidth-limited network without affecting the quality of the medical content.

Clinical evaluation of such computer-aided diagnosis was carried out in several Dutch hospitals. The first computer-aided detection systems for pulmonary embolisms from Philips Healthcare are already entering the market.

VALIDATING AND BENCHMARKING PRODUCTS
Various steps were taken to enable the validation and benchmarking of content-aware products for quality and robustness. CANTATA initiated the development and sharing of a common methodology with the community of content-aware system developers. Common data sets have been made available on the Internet. And the content-aware technology developed in CANTATA has been validated according to this methodology.

Overall, the ITEA project not only resulted in a series of products that are already being commercialised but has also enabled many of the partners involved to grow. Spin-off companies have developed significantly since the start of the project. For example, high-tech start-up ViNotion, which specialises in automation systems based on video-content analysis, has grown from zero to six full-time equivalents. And VDG Security has nearly tripled its research staff to 20.

More information: www.itea-cantata.org

TIMMO
(ITEA 2 ~ 06005)

Friedhelm Stappert,
Continental Automotive, Germany

Managing in-car timing
constraints

The TIMMO project developed and demonstrated a common, standardised infrastructure to ensure optimum handling of timing information during the design

of embedded real-time systems for the automotive industry. Building on the existing AUTOSAR standard, this approach will shorten the development cycle of

new vehicles and functions, and increase its predictability, benefitting both carmakers and their suppliers. The results will keep development cost of ever more

advanced systems under tight control, while speeding design. First applications are expected in the car industry by the end of 2009.

Use of embedded electronics and software has had a major impact on innovation in the automotive industry in recent years, driven in great part by European manufacturers. It has enabled improvements in:
- Comfort — such as parking assistance, automatic climate control and navigation systems;
- Safety — including vehicle stability control, multiple airbag systems and seatbelt pre-tensioners; and
- Environmental protection — such as direct fuel injection and catalytic converter control.

This has meant that today's cars have many computers communicating through in-vehicle data buses in a complex, distributed, electronic architecture that has to integrate both, existing and new functions. Future functions will be even more complex, distributed, interconnected and necessarily interdependent. Correct behaviour will not simply be a matter of functional correctness, but will also depend on timing and reliability constraints.

The effects of improper timing range from loss of comfort to life-threatening situations. Building systems in an efficient, predictable and reliable way in spite of the increased complexity of functions and architectures as well as managing the supply chain to ensure predictable integration of software components and platforms is a major challenge.

ENSURING CORRECT SYSTEM TIMING
Systems' communications over the data buses is complex, involving applications sending many messages of differing natures and urgencies. Correct system timing is essential — particularly for safety-critical operations. For example, the safe functioning of vehicle stability control systems which involves differential braking of individual wheels depends on the timely delivery of braking commands.

However, while precise timing and prioritisation of functions are essential for both safety and comfort, timing has only been considered rather late in the design flow. Timing behaviour is verified by means of measurements at testing time, rather than through formal and systematic analysis accompanying the whole design process. Discovery of problems at this late point leads to costly iterations since most of the critical design decisions have already been taken and are difficult to modify.

TIMMO therefore set out to develop a timing-enhanced process covering end-to-end delay and synchronisation — for example fixing the maximum

delay between hitting the brake pedal and the brakes actuating, while ensuring all brakes act at the same time. This takes into account timing aspects in all development phases as well as abstraction levels and is capable of verifying the timing behaviour of real-time systems early in the design flow.

The need for this ITEA 2 project was recognised in the Automotive Open System Architecture (AUTOSAR) development partnership, which developed out of the ITEA EAST-EEA project. TIMMO brought together leading European carmakers, their major suppliers, tool vendors and advanced research institutions with the intention of feeding back the results into the global AUTOSAR process. Partners came from Austria, France, Germany, the Netherlands and Sweden.

TARGETING A COMMON, STANDARDISED APPROACH
TIMMO targeted a common approach to handling timing-related information. This has significantly reduced the complexity and cost of the development

cycle, while improving reliability. Consequently, complex innovative vehicle functionalities can be designed and implemented more easily, at less cost and with more confidence.

The principal goals were formal and standardised specification, analysis and verification of timing constraints across all development phases and at all levels of abstraction. The aim was to allow early analysis of whether a system can meet specified timing requirements, while avoiding over- or under-dimensioned systems and unnecessary iterations in the development process. Abstraction is important

to enable timing requirements to be traced from the systems level down to the implementation level.

A key innovation was the development of a formal timing-augmented description language (TADL) for the modelling of timing information. This UML-based language includes a set of timing constructs complementing the EAST-ADL2 architecture description language and the industry standard AUTOSAR. TIMMO also produced a methodology describing how to apply the language, showing the way timing-related information is identified, refined and verified.

A series of demonstrators validated the concepts and showed the applicability of the TADL and methodology. These included:
- A *brake-by-wire system* including an anti-lock braking system (ABS);
- A *steer-by-wire system* with active steering wheel, wheel actor and damping test bed;
- An *engine-management system* controlling ignition, injection and throttle;
- A *transmission control* implementing a simplified gearshift; and
- A *cruise control/security system* implemented on three electronic control units (ECUs) — engine management, instrument cluster and body — as well as a security system for car-access control.

BENEFITTING MORE THAN THE CAR INDUSTRY
The main beneficiaries of the ITEA project results will be carmakers and their suppliers. Both will use the new TIMMO language and methodology — being part of AUTOSAR 4.0 in late 2009 — for a well-defined exchange of timing information in automotive embedded-system development.

The first practical applications are expected in 2010. And tool vendors will be able to develop and sell improved products that support the new language and methodology.

Moreover, it is expected that TIMMO results will interest the aerospace sector, which has even more constraints in terms of systems safety. And they can also inspire more general work in the Object Management Group (OMG) and other modelling tool groups.

While the AUTOSAR standard is global with application in North America and Asia-Pacific, European carmakers and tool suppliers should be the first to benefit from the new approach, helping a key industry emerge more quickly from the current economic crisis.

More information: www.timmo.org

WELLCOM
(ITEA 2 ~ 06030)

Christophe Senot,
Alcatel-Lucent Bell Labs, France

Turning TV watching into a personalised
interactive experience

The successful outcome of the WellCom project now makes it possible to create, deliver and manage advanced personalised and interactive multimedia applications and services in a distributed home environment and on-the-move. End-users can now have easy and seamless access to interactive and personalised TV services and TV-related applications on various terminals using their mobile phones. The project also enables new types of group involvement, making the TV experience really interactive and enabling cross-platform participation. As a result, WellCom enhances the TV experience for the user and opens up innovative revenue models for operators and for service and content providers.

Broadcast TV faces many challenges and must evolve to continue as a major medium for marketing and entertainment. The way users consume TV has changed with statistics and surveys showing that 18- to 26-year olds are spending increasing time online – leading to an inevitable decline in revenue for traditional broadcast business models that rely on advertising.

At the same time, the quantity and choice of TV content is ever increasing, making it more difficult for content providers to reach users and for users to find the content they want. Moreover, only a limited number of users can handle the complexity of the equipment and services now on offer.

The WellCom project was launched by Alcatel-Lucent with the objective of improving interactive TV technologies to simplify user choice and boost broadcast revenues. The intention was to involve all elements of the value chain: consumer groups, content providers, equipment manufacturers and communications companies with the support of research organisations.

ENCOURAGING ACTIVE INVOLVEMENT
An analysis of the needs for future TV content indicates a clear expectation from consumers for new more personalised TV experiences. These should allow consumers to be actively involved in a two-way dialogue that enables them to request specific personalised content based on their preferences while also being able to exchange information within their local and remote communities.

Using a large diversity of equipments and technologies, WellCom has therefore developed a rich and original environment for the creation of new TV services to take full advantage of interactivity and personalisation for enriching the user's experience.

These technologies include:
• TV sets used as community equipment for displaying or sharing the same content within a defined group of users;
• User terminals in the home environment that ease interactions with TV content through the set-top box (STB) and deliver personalised services directly to the user's terminal;
• WiFi, near field communication (NFC) and Bluetooth technologies combined with 'easy-pairing' mechanisms that make it easier for users to connect to interactive programmes and social applications through their mobile phones. This also allows a clear identification of who is in front of the TV – essential for a user-centred or shared community-based TV experience; and
• Accesses to legacy networks – such as digital video broadcasting (DVBx), Internet (IPTV), 3G mobile communications and other wireless media – for delivery of enriched contents, services and applications.

EASY USER PERSONALISATION
A major result of WellCom has been the design and development of a generic set of components allowing easy personalisation of the user experience through multiple types of TV programmes.

The personalisation layer consists of:
• A *user profiling engine* that learns from user consumption to track user preferences, while also enabling users to set their own preferences via a graphical interface;
• A *community profiling engine* that collects social and presence information related to user activities to build relevant community profiles for group recommendations;
• A *user privacy manager* that allows users to define their own privacy policies – a mandatory step for personalisation; and
• A *semantic recommender* that uses a rich ontology-based semantic model to find contents that best match individual and community preferences.

This personalisation layer is fully integrated within the underlining service delivery platform on which the execution of end-user services relies. This approach also makes it possible to push part of the personalisation logic as close as possible to the end-user to distribute processing power, retrieve more precise traces and offer users a better control on privacy. Some components have been specially tuned for the STB. These include profiling proxies for collecting accurate user consumptions and interactions – such as zapping and identities of all connected users – and a part of the semantic recommender for pre-filtering TV contents based on user preferences.

An external application programming interface (API) federates these distributed enablers and offers a set of generic methods to TV programme/service providers for integrating personalisation easily within their business logic. API methods are published either as web services or HTTP 'get' requests. The latter is mainly used by STBs or mobile terminals that have poor hardware resources. Several ambitious TV programmes mixing interactivity and personalisation were developed within the project to demonstrate the WellCom approach. They were featured in the exhibition at the ITEA event in Madrid in October 2009. These included:
• A *game show* based on the well-known 'Who wants to be a millionaire' TV quiz show, allowing users to play along while receiving personalised information and targeted advertising;
• *Betting* on football matches, where users can play with a live TV sports programme and bet in different future events using their mobile phones; and
• *E-learning* with a personalised quiz game based on users' and communities' preferences.
• *Shopping* at home during the advertisement video sequences the user receives personal commercial offers based on his preferences, then when he is on the move thanks to a geo-location system the offers are activated according to the surrounding shops.

These demonstrations were tightly coupled with the generic personalisation layer, clearly indicating the generic approach and interoperability with any possible TV application.

WellCom generates high social impact as it transforms traditional 'passive' TV consumption into an interactive experience. The personalised interactivity provided through the distributed infrastructure opens up the possibility of group experience of TV content. For example, users can take part themselves in a broadcast TV quiz and compete with friends – or a user can invite a friend to take part in a personalised quiz.

Such community encounters will create attractive TV experiences.

BUILDING HIGHER USER LOYALTY
The overall results ensure high business impact by increasing user loyalty, allowing greater attractiveness in advertising and service offers. WellCom supports an open business model that extends the TV environment into a universal IP-service interface. Services and advertisements can be targeted thanks to the advanced personalisation layer. Targeted advertisements on mobile phones allow service providers to tap into new revenue streams, using 'pay per click' advertising revenue models.

Personalised interactivity can be exploited in many different ways as the project demonstrators indicated, and there are other examples. Users could also be invited to play a game while watching advertisements or advertisements could be supported by an interactive quiz. Users could also join in TV quiz shows by providing their answers directly through their mobile phones, and thus compete within their local STB or the global TV community. New revenue-creating interactions could also be enabled, such as offering the user a €5,000 prize by answering questions at a fee of €0.10 a question.

By providing a new dimension of interactivity with a personalised content and service environment, the results of WellCom will both enhance the TV experience for the user and open up innovative revenue models for operators and for service and content providers.

More information: www.itea-wellcom.org

CALENDAR

1-2 February 2010
ITEA 2 PROJECT OUTLINE PREPARATION DAYS 2010 – OPENING CALL 5

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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 Call 5.

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www.erts2010.org

Tuomo Tuikka
Senior Research Scientist, VTT Technical Research Centre of Finland

Mobile interoperability researcher builds on broad academic and industrial experience

Tuomo Tuikka is a Senior Research Scientist at the VTT Technical Research Centre of Finland, where he manages several European projects involved with mobile interaction. He was the co-ordinator of the ITEA SmartTouch project, which won the 2009 gold achievement award at the ITEA Symposium in Madrid, and is the Finnish consortium coordinator for the new ITEA 2 SUS project, designed to introduce interoperable e-city services based on mobile technologies and ubiquitous mobile computing techniques. He has both an academic and industrial background, built up in Europe, the USA and Japan. He is also an enthusiastic radio amateur.

Dr Tuikka has always been keen on electronics. He became involved in informatics and software at university and has practised his craft around the world. "My mother told me back in the 1970s that software was the future – look at all these punched cards," he remembers. He studied at the University of Oulu and held an Assistant Professorship there until 2002, when he gained his PhD.

ACADEMIC AND INDUSTRIAL EXPERIENCE

He has been an intern at a software company in California, a visiting researcher at the Risø National Laboratory in Denmark, and was involved in many EU and Finnish research projects, through the University of Oulu, including working with aerospace and defence group EADS on design simulation. Over this period, he gained extensive experience in collaborative systems, usability and virtual product development.

In 2002, Dr Tuikka moved to industry, joining a then small Finnish software house Cybelius Software, operating in both Finland and Hungary. This took him to Japan, where he visited nearly all the consumer electronics companies and did much work on virtual prototyping for printers, mobile phones, etc., working particularly on usability and user interfaces. The company was growing and he returned to Finland as director of development. Following the merger of Cybelius Software with software group CCC, he had responsibility for international multi-site software product development.

CCC eventually sold its mobile software tool business to Japan, and Dr Tuikka decided to move back into research, joining VTT in early 2007. He quickly became responsible for the highly successful ITEA SmartTouch project, which has developed a platform for touch and interactive user orientation, based on near field communication (NFC) technology, and piloted smart interactive services.

PILOTING NFC BUSINESS CASES

NFC offers short-range wireless connectivity, which makes it possible for smart consumer devices to interact quickly and easily when brought close together or touching. SmartTouch tested a series of business scenarios for payment and ticketing, access control, infotainment and entertainment services using the NFC concept. It was the largest effort on piloting NFC technology in the EU and has achieved worldwide impact.

"NFC offers very good business cases but we wanted it to become a global standard with everything in place for full exploitation," explains Dr Tuikka. "NFC is now ready and our project tested business models. Consortium member Gemalto has successful sold a full-scale NFC solution to Taiwan Mobile covering payment and loyalty cards as well as smart devices. Frankfurt public transport company RMV is continuing to exploit NFC technology for ticketing and looking at expanding functionality. Spring 2010 should see some significant announcements on NFC."

Involvement in the SmartTouch project also enabled Dr Tuikka to participate in the NFC Forum which is piloting globalisation of NFC standards. "Non-profit organisations such as VTT are not normally involved in such industry forums," he points out.

The SmartTouch results are being taken further in a new ITEA project SUS – Smart Urban Spaces – that had its kick-off meeting in September 2009. "Public administrations are now involved and we are looking at infrastructure and ecosystems," explains Dr Tuikka. The project is being co-ordinated by Gemalto.

STRONG BELIEF IN ITEA

Dr Tuikka believes strongly in ITEA. "EU Framework Programme projects are well planned but rigid," he says. "ITEA projects are more industry oriented, more business oriented and more flexible." This flexibility was important for SmartTouch as it needed input from industry and businesses. It also provided the freedom to produce what industry really needed and ecosystems can sell.

While Dr Tuikka now sees ITEA as business oriented, he thinks it could possibly do more to encourage support for research results from venture capitalists. "We have a lot of good ideas but we don't necessarily know how to exploit them," he points out.

Outside the office, Dr Tuikka still keeps up his long-term amateur radio hobby. "I started with valve radios but my latest model is Japanese with a computer interface for frequencies and an Internet connection!" However, he does not have a lot of spare time for his hobby at present with a five-year old son and three-month old twins at home.

EUREKA and its ICT Clusters to play key role in European economic recovery

Economic forecasts show Europe is slowly recovering from the global economic crisis, according to EUREKA High Level Group Chairman Walter Mönig. He foresees a key role for EUREKA and its information and communications technology (ICT) Clusters in a new strategy for growth, as he explained to the ARTEMIS & ITEA Co-summit in Madrid. However it is necessary to establish more clearly the difference between the Clusters and the EU Joint Technology Initiatives.

Germany has taken over the EUREKA Chair for the third time since 1985, demonstrating its commitment to European co-operation following the German EU presidency in 2007. "We intend to ensure the continuity of development of EUREKA and initiatives put forward by previous Chairs – especially the Slovenian and Portuguese Chairs – and the German EU presidency," said Mönig.

The work programme of the German EUREKA Chair consists of six areas of action. Mönig focused on two: the opening up of EUREKA to worldwide collaboration; and strategic initiatives in key sectors through European clusters and competence networks.

CO-OPERATION OUTSIDE EUROPE
All EUREKA participants, including those in ITEA and ITEA 2, have already been able to co-operate with non-European project partners. "We wish to continue the initiative of the Portuguese EUREKA Chair and stimulate the structuring of global partnerships with key strategic partner countries," he said. Such partnership agreements need of course to be in line with the EUREKA Initiative criteria.

Two interesting new EUREKA partners are: South Korea, which has joined the EUREKA network as an associated country; and Egypt, which achieved a flying start in ITEA 2's fourth Call. "For these countries, EUREKA could become the gateway to Europe and, in turn, facilitate access for European industry to new markets in sectors such as ICT or renewable energy," he added.

NEED FOR BROAD-BASED INNOVATION POLICY
The future of the EUREKA Clusters is vital, not only for EUREKA, but also for the competitiveness of European industry as a whole in several strategic sectors, according to Mönig. "What we need is a broad-based European innovation policy that sets out the adequate lines of support to industrial R&D and innovation," he insisted.

However, from the industry point of view, the EUREKA Clusters and EU Joint Technology Initiatives now offer fairly similar co-operation and funding mechanisms. "A number of aspects need to be discussed, such as a clear definition of the

EUREKA – A MAJOR EXHIBITION CONTRIBUTOR
As in previous years, the EUREKA Initiative was represented by a stand in the Project Exhibition. For the first time, ITEA 2 and EUREKA combined forces in a joint booth, increasing our synergy. As our projects are the building blocks of the ITEA 2 programme, we are grateful for the support of the EUREKA Secretariat in the realisation of the project exhibition.

interfaces for the various funding schemes in Europe," he noted. This is an aspect already being dealt with by the Clusters themselves.

OFFERING A CHOICE OF INSTRUMENTS
Mönig saw the necessity for a variety of support mechanisms in Europe. EU instruments take a long-term perspective, offering the best conditions for bundling resources. But there is also a need for more flexible instruments, which make it possible to mobilise resources very quickly. Such instruments are based on the flexible co-operation of networks like those of EUREKA.

"Europe needs both types of instruments for the European economy to overcome the current crisis and re-emerge strengthened," he concluded. "In particular, we need fertile ground for both types of instruments to breed excellence and the best solutions."

ITEA 2
INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT