ITEA 2 Symposium 2008
Road ahead for European software research

High Definition TV for Europe
HD4U – ITEA success story
HDTVNext - taken up the HDTV baton

Opening ITEA 2 Call 4
Prepare yourself for the PO days in Istanbul!
ITEA: the benefit of complementarity

The 2008 proof of evidence

Co-operative industrial research and development (R&D) relies in general on two alternatives models: horizontal or vertical. The first model leads competitors to work together by pooling similar resources and competences to decrease cost and risks by economies of scale. In this model, the concept of R&D critical mass is key for instance to removing a strong upstream technology road-block, which prevents potential and future enlargement of a market already accessible by everyone, or to achieving some standardisation. This type of co-operation is also called horizontal, since it refers to a similar positioning of the partners in the value chain.

The second model – let us call it the vertical model – leads to alliances of firms with complementary technology and/or market assets. Here the notion of vertically refers to different positions in an existing or a new value chain.

Of course none of the co-operative R&D initiatives we know fall strictly in one or the other model. The reality is more a coexistence or even a hybridisation of the two models inside one R&D programme. However, it is clear that the model on which ITEA mainly relies is the second, as we can observe it at work in our projects. This has some major and measurable effects.

An indicator is the fast increasing participation of small and medium-sized enterprises (SMEs) in our programme, as it has been confirmed by the Call 3 for Project Outlines. They are working as technology providers with large corporations that see themselves as technology integrators in the framework of an ecosystem reinforcing the position of each member in the context of a global game. It can also be observed from Call 3 a growing number of new partners joining our projects. This also shows the need for complementarity that can be fulfilled by the overall ITEA community.

The consequences of having various actors of different or equivalent sizes but with different activities inside the same project are extremely beneficial and also observable. They lead potentially to the creation of totally new markets as has been shown by the LOMS project, which won the 2008 ITEA gold achievement award.

This project developed an open-service architecture allowing SMEs and non-professional users to set up easily their own meta-logical services and applications from the control or service provisioning in business-to-consumer or business-to-business scenarios, hence transforming local and classical small businesses into service operators.

A similar effect in terms of new market creation is achieved in our telemedicine projects H4L and H4L4MU. Those two projects demonstrated at our symposium this year show an enlightening example of co-operation between various actors, leading to a new value chain and involving medical equipment suppliers, telecommunications equipment suppliers, telecommunications operators, software houses, …

Another dramatic effect of vertical co-operation is technological convergence paving the way to potential market and business convergence. As we know, the technical convergence between the information technologies, telecommunications and multimedia industries is already well underway. However, ITEA built the melting pot where this phenomenon can be extended to embedded systems suppliers.

Projects such as SINERA, which won the 2008 ITEA gold achievement award, ANGIS, which won the so-called Vice Chairman 2008 award, and other projects like SSDIA, pioneered the concept of the ‘web of objects’ that allows any physical objects equipped by not more than a microcontroller to be seen as offering services on the worldwide web. This carries in itself potential fundamental ruptures in future industrial and business structures.

As a conclusion, it appears that ITEA represents in Europe a unique opportunity to lead this convergent and related technology and market transformations. The welcome expansion of activities represented in the ITEA board with a very significant telecommunications operator such as Telecom Italia will no doubt reinforce this position.

Gérard Roucairol
Marking out the road ahead for European software research

The 2008 ITEA 2 Symposium and the joint ARTEMIS & ITEA Co-summit in Rotterdam, the Netherlands were attended by over 600 R&D actors and policy makers representing industry, academia and public authorities. Overviews of progress were highlights of the event, with overviews of progress being one key element of the ITEA Community day, which also marked a first view of the new ITEA Roadmap. The event highlighted the importance of software-intensive systems & services as major drivers of innovation in Europe’s most competitive industries. The 2008 Achievement Awards went to:

LOMS mobile services creation (Gold) – this project has made it possible to combine service creativity with powerful features of a well-controlled service environment;

MARRANTS model-based methodology (Silver) – addressing business risks, systems domains and complexity, it focuses on embedded systems, development productivity, and trustability (Reliability) – which delivered a solid, flexible and trustworthy architecture for embedded systems in several domains.

An exceptional one-off award went to the ANSSE project at the request of ITEA 2 Vice-Chairman Gérard Rouscaër for its contribution to the realisation of the Web of Objects.

Several ITEA 2 founding companies were involved in developing the third edition of the ITEA roadmap – a major revision in line with the ITEA 2 programme launched in 2006. The new document was produced by a group of 15 experts in software-intensive systems and services representing a wide variety of industries and service activities that has tried to foresee the evolution of software until 2014. Nearly 100 people from the ITEA community reviewed the document and gave valuable input already included. This exceptional document provides an innovative global vision of the future for the software community. It also proves the potential of ITEA 2 to contribute significantly to European industrial competitiveness over the coming six to seven years. An important change was a move from the previous technology-driven approach to a series of ‘me/group/society’ viewpoints to support an ‘outside-in’ view. “The current information technology era is coming to an end and being replaced,” said Jean-Luc Dormoy of ITEA DRT. “We are reaching the limit of Moore’s law, we need to move from large systems to systems of systems, software requires brains and methods that we do not necessarily have, and we are facing challenges without precedent, so we now need some breakthroughs.”

Thuring was also important participation by eight national ICT competitiveness clusters: ATOS (DE); Point-one (NL); AESE, Cap Digital, Minalogic (FR); and Prometeo (ES). Several other clusters were in attendance: Pictor (BE); Safetrans (FR); and Prometeo (ES).

The ITEA 2 exhibition again served as a major focus, showcasing achievements. It featured 48 ITEA/ITEA 2 projects representing 6,860 person-years of effort and accounting for €734 million, 3 EU IST projects and a special section featuring European healthcare projects including demonstrations from the Robert Bosch Partnership for the Meat project and Philips Healthcare.

Mapping the way ahead

European competitiveness and well-being through ICT-based innovation

Overviews of progress were highlights of the ITEA Community day, which also marked a first view of the new ITEA Roadmap – a 3rd edition. The LOMS, MARRANTS and TRUSTMILL projects described the potential as shortlisted candidates for the 2008 ITEA Awards. Special focus sessions were held at the Open Space and Technopodium, a look at the future. Ten years after the first edition, continuing growth is participated with some 60% of the 2008 partners invited to the event. European Talents of the Competence Centre for Information Security Development provided us insight into ITEA 2 looking in Spain.

Speaking on behalf of Maria van den Heever, Dutch Minister for Economic Affairs, Director General for Enterprise & Innovation Renée Bennkamp opened the ARTEMIS & ITEA Co-summit by highlighting the important role intelligent systems and services play in social and economic terms. ITEA and ITEA 2 have set standards for co-operation. However we need to translate research into results and pool our resources,” she said.

Keynote presentations included an overview of EUREKA by Maria van der Hoeven, Director General for Enterprise & Innovation Renée Bennkamp opened the ARTEMIS & ITEA Co-summit by highlighting the important role intelligent systems and services play in social and economic terms. ITEA and ITEA 2 have set standards for co-operation. However we need to translate research into results and pool our resources,” she said.

Keynote presentations included an overview of EUREKA by Maria van der Hoeven, Dutch Minister for Economic Affairs, Director General for Enterprise & Innovation Renée Bennkamp opened the ARTEMIS & ITEA Co-summit by highlighting the important role intelligent systems and services play in social and economic terms. ITEA and ITEA 2 have set standards for co-operation. However we need to translate research into results and pool our resources,” she said.

Keynote presentations included an overview of EUREKA by Maria van der Hoeven, Dutch Minister for Economic Affairs, Director General for Enterprise & Innovation Renée Bennkamp opened the ARTEMIS & ITEA Co-summit by highlighting the important role intelligent systems and services play in social and economic terms. ITEA and ITEA 2 have set standards for co-operation. However we need to translate research into results and pool our resources,” she said.

Keynote presentations included an overview of EUREKA by Maria van der Hoeven, Dutch Minister for Economic Affairs, Director General for Enterprise & Innovation Renée Bennkamp opened the ARTEMIS & ITEA Co-summit by highlighting the important role intelligent systems and services play in social and economic terms. ITEA and ITEA 2 have set standards for co-operation. However we need to translate research into results and pool our resources,” she said.

Keynote presentations included an overview of EUREKA by Maria van der Hoeven, Dutch Minister for Economic Affairs, Director General for Enterprise & Innovation Renée Bennkamp opened the ARTEMIS & ITEA Co-summit by highlighting the important role intelligent systems and services play in social and economic terms. ITEA and ITEA 2 have set standards for co-operation. However we need to translate research into results and pool our resources,” she said.

Keynote presentations included an overview of EUREKA by Maria van der Hoeven, Dutch Minister for Economic Affairs, Director General for Enterprise & Innovation Renée Bennkamp opened the ARTEMIS & ITEA Co-summit by highlighting the important role intelligent systems and services play in social and economic terms. ITEA and ITEA 2 have set standards for co-operation. However we need to translate research into results and pool our resources,” she said.
ITEA 2 Symposium

Symposium sessions

A series of special focus sessions and parallel sessions was presented during the ITEA 2 Symposium in Rotterdam. All the presentations are available on the Symposium website: http://symposium.itea2.org/itea2_programme

Special Focus Sessions

Tuesday 21 October

Telemedicine

In coordination with the AmIE and Nuadu projects

By Peter van der Meulen

The Nuadu project focuses on networked “healthcare and well-being” services for people at home and on the move. The goal of Nuadu is to explore the opportunities for providing healthcare and wellness services and applications that facilitate more cost-effective and efficient solutions. The main technical areas of interest are:

1. Sensors and actuator networks
2. Mobile and Home Hubs
3. Web-based services platform
4. Enterprise telecommunication services

For this exploration, Nuadu plays much attention to demonstrator and pilot sites. It proved to be very valuable to bring the sites in real practice. The Nuadu pilot sites are working to meet these market challenges in the following ways:

1. Preventative measures: Epios, Finland, encourages more effective healthcare self-management by municipal workers via a health status monitoring & health promotion information (info & pay) service.
   Valencia, Spain, encourages better self-management of nutrition, activity & weight by consumers, via a web-based service, to reverse the likelihood of cardiovascular disease and obesity.
2. Enabling independent living: Kunbwo, France, Maintains the ability of handicapped and/or elderly people to live independently with limited assistance via networked services and local personal help.
   Hoensbroek, Netherlands, Reduce need for stroke patients to physically visit rehabilitation centre and improve recovery times via on-line physiotherapy monitoring and coaching.
3. More effective management of chronic conditions: Madrid, Spain, enables more intensive monitoring of heart patients at home and abroad via a mobile on-line connection with cardiac monitoring service.
   Since the project is reaching the end, some preliminary conclusions can already be reported:
   - Standardisation:
     - Very diverse set of available technologies: hard to standardise
   - Components can be found in:
     - Ontology
   - UI concepts
   - Ways to motivate users
   - Effective to deal with the issues created by the ageing society:
     - Prevention is in state of being (personal health)
     - Living independently (personal independence / quality of life)
     - Reduction of healthcare costs
   - Business model complex:
     - Not clear who will pay (user, physician, government, insurance)
     - Not clear who gets the revenues
   - Pilot sites:
     - Very valuable to elaborate requirements and concepts

In the Special Focus Session the Nuadu project was presented, with the main intention to share the lessons learned during this almost finalized project with the people who will continue these activities, especially participants of the AmIE project. A lot of statements and perceptions was prepared to trigger discussions and to lead the AmIE with material for internal considerations during their project.

Open Source

By Erik Rodenbach

The workshop on open source software (OSS) arise during meetings between ITEA 2 and national ICT competitiveness clusters earlier this year. Open-source software is an important topic and the possibility for cooperation between the various ICT clusters with ITEA 2 as a facilitator was discussed. Apart from discussing the initiatives of international projects on open-source by the ICT Clusters, the idea of having a more open discussion in Rotterdam on this topic was raised.

As requested, the sessions involved a panel discussion with maximum interaction between panelists and the audience. The panel had a good mix of representatives participating in national ICT clusters and in large and small companies. These included ICT Clusters Pôleiris (Spain) and Aerospace Valley (France), large companies Airbus and Philips, and SMEs Madina (France) and Aportus (Spain). The session was moderated by Dr Björn Lundell of the University of Skövde in Sweden. Dr Lundell has long experience in the OSS market and had already moderated several sessions on this topic. He is also technical manager of the ITEA 2 OSS project.

Following an introduction by Dr Lundell, panelists gave their views on open source and what it means for their organisations. This was followed by a lively discussion with the audience. Topics addressed included the need for social skills in OSS development, the need to set up a good community and finding your way in open-source.

New ITEA 2 vice-chairman Philippe Letellier wound up the session with a summary of the discussions. He pointed out that national ICT clusters could play a major role in addressing the OSS market and provide the required critical mass. He invited the clusters to propose joint initiatives for new OSS projects in the next ITEA 2 call at the beginning of 2009.

AmIE

Ambient intelligence for the elderly

By Ricardo de las Heras

Europe now has both the highest proportion of, and the greatest increase in, elderly citizens of any major worldarea. This is leading to an increase in the number of people with impairments, disabilities or chronic illness. Development and use of new technologies should provide relief in many situations, facilitating the care and independence of the elderly.

AmIE aims to offer a complete intelligent ambience – indoors and out – to improve the quality of life. It will achieve this by predicting potential problems and providing customised support to people in need of assistance, according to their own specific situation in terms of need and character – all in a non-intrusive and respectful way. As a result, users will be able to extend their stay at home in an independent and autonomous way.

Several services are being developed in AmIE, such as: Habit Tracking, Food Management, Location within the house, different multimodal interactions according to the necessities and impairments of the users, IPTV services to facilitate communication with relatives, and breathing assistance for people with Apnoea episodes.

The Rotterdam session presented the project consortium, an approach to the system’s architecture and its position in the current market. Finally some questions were launched to the audience to open a discussion about these types of systems, their acceptation by final users and the real needs that should be covered to accomplish user’s expectations.

Nuadu

Networked “healthcare and well-being” services

By Peter van der Meulen

The Rotterdam session presented the project consortium, an approach to the system’s architecture and its position in the current market. Finally some questions were launched to the audience to open a discussion about these types of systems, their acceptation by final users and the real needs that should be covered to accomplish user’s expectations.

The Netherlands has the highest proportion of elderly citizens of any major worldarea. This is leading to an increase in the number of people with impairments, disabilities or chronic illness. Development and use of new technologies should provide relief in many situations, facilitating the care and independence of the elderly.

Nuadu focuses on networked “healthcare and well-being” services for people at home and on the move. The goal of Nuadu is to explore the opportunities for providing healthcare and wellness services and applications that facilitate more cost-effective and efficient solutions. The main technical areas of interest are:

1. Sensors and actuator networks
2. Mobile and Home Hubs
3. Web-based services platform
4. Enterprise telecommunication services

For this exploration, Nuadu pays much attention to demonstrator and pilot sites. It proved to be very valuable to bring the sites in real practice. The Nuadu pilot sites are working to meet these market challenges in the following ways:

1. Preventative measures: Epios, Finland, encourages more effective healthcare self-management by municipal workers via a health status monitoring & health promotion information (info & pay) service.
   Valencia, Spain, encourages better self-management of nutrition, activity & weight by consumers, via a web-based service, to reverse the likelihood of cardiovascular disease and obesity.
2. Enabling independent living: Kunbwo, France, Maintains the ability of handicapped and/or elderly people to live independently with limited assistance via networked services and local personal help.
   Hoensbroek, Netherlands, Reduce need for stroke patients to physically visit rehabilitation centre and improve recovery times via on-line physiotherapy monitoring and coaching.
3. More effective management of chronic conditions: Madrid, Spain, enables more intensive monitoring of heart patients at home and abroad via a mobile on-line connection with cardiac monitoring service.
   Since the project is reaching the end, some preliminary conclusions can already be reported:
   - Standardisation:
     - Very diverse set of available technologies: hard to standardise
   - Components can be found in:
     - Ontology
   - UI concepts
   - Ways to motivate users
   - Effective to deal with the issues created by the ageing society:
     - Prevention is in state of being (personal health)
     - Living independently (personal independence / quality of life)
     - Reduction of healthcare costs
   - Business model complex:
     - Not clear who will pay (user, physician, government, insurance)
     - Not clear who gets the revenues
   - Pilot sites:
     - Very valuable to elaborate requirements and concepts

In the Special Focus Session the Nuadu project was presented, with the main intention to share the lessons learned during this almost finalized project with the people who will continue these activities, especially participants of the AmIE project. A lot of statements and perceptions was prepared to trigger discussions and to lead the AmIE with material for internal considerations during their project.

AmIE

Ambient intelligence for the elderly

By Ricardo de las Heras

Europe now has both the highest proportion of, and the greatest increase in, elderly citizens of any major worldarea. This is leading to an increase in the number of people with impairments, disabilities or chronic illness. Development and use of new technologies should provide relief in many situations, facilitating the care and independence of the elderly.

AmIE aims to offer a complete intelligent ambience – indoors and out – to improve the quality of life. It will achieve this by predicting potential problems and providing customised support to people in need of assistance, according to their own specific situation in terms of need and character – all in a non-intrusive and respectful way. As a result, users will be able to extend their stay at home in an independent and autonomous way.

Several services are being developed in AmIE, such as: Habit Tracking, Food Management, Location within the house, different multimodal interactions according to the necessities and impairments of the users, IPTV services to facilitate communication with relatives, and breathing assistance for people with Apnoea episodes.

The Rotterdam session presented the project consortium, an approach to the system’s architecture and its position in the current market. Finally some questions were launched to the audience to open a discussion about these types of systems, their acceptation by final users and the real needs that should be covered to accomplish user’s expectations.
Several key challenges have to be addressed to achieve a sustainable healthcare system. Improvement in productivity and reduction in healthcare variability require the use of staff. Jeroen Wals of Philips Research illustrated the result of deploying the system for over 50,000 diabetes patients over a period of 12 months shows significant improvements in the quality of care and compliance in terms of doses of diabetes medications. However, improvements are required in smoking and obesity lifestyle changes; the system will be extended to address these issues. Overall, professional and patient satisfaction is high and compliance has improved significantly.

Health and Well-being
By Stan Smits

Parallel Sessions Wednesday 22 October

Creative Industries: Where design meets technology
By Joan Gelisom

The application of software-intensive systems (SIS) has traditionally been limited to the professional domain – high and low end black boxes for consumers. Today, these systems are part of everyone’s everyday life, in fact it would be very hard for most to function without using such systems such as mobile phones, navigation devices, personal digital assistants, the greater part of the functionality of modern cars and the Internet – for both professional use and leisure.

The extended flexibility, functionality and diversity of these systems have also been discovered by the creative industries and has resulted in new creative ways by applying SIS in art, music, advertising, design processes and the like. During the parallel session some examples of this new wave of creative initiatives were presented and demonstrated.

Innovations in gaming
Computer games are now seen as an accredited industry and as cultural. But what is the nature of the ideas driving the creative developments and has resulted in new creative ways by applying SIS in art, music, advertising, design processes and the like? During the parallel session some examples of this new wave of creative initiatives were presented and demonstrated.

Open Source: a solution for embedded systems technology?
By Syrine Robert

Today, open source is recognised as an easy and free way to build commodities for IT applications in general. However, when considering software development for embedded systems in industries such as automotive, telecommunication, software development methodologies are highly relevant.

Several potential application domains – telecommunication, manufacturing automation and process control – showed how they are integrating these technologies in their solutions. Interesting questions were raised regarding the applicability and limits of such technologies. These included, the implementation cost at the device level, the real-time capability, and compatibility with process control requirements – real-time control loops, etc.

Investigation of these technologies and their applications was made possible by the ITEA SIRENA project that finished in 2005 and which showed the feasibility. SIRENA won the ITEA award in 2006 for this demonstration.

Thanks should also go to the continuing ITEA SODA and EST SODDIES projects, which had a common stand in the exhibition area. Several presentations were demonstrated, including a real industrial automation machine with a distributed control solution using DPWS embedded in low-cost industrial devices, physically showing the Web of Objects concept.

Several key challenges have to be addressed to achieve a sustainable healthcare system. Improvement in productivity and reduction in healthcare variability require the use of staff. Jeroen Wals of Philips Research illustrated the result of deploying the system for over 50,000 diabetes patients over a period of 12 months shows significant improvements in the quality of care and compliance in terms of doses of diabetes medications. However, improvements are required in smoking and obesity lifestyle changes; the system will be extended to address these issues. Overall, professional and patient satisfaction is high and compliance has improved significantly.

Health and Well-being
By Stan Smits

Parallel Sessions Wednesday 22 October

Creative Industries: Where design meets technology
By Joan Gelisom

The application of software-intensive systems (SIS) has traditionally been limited to the professional domain – high and low end black boxes for consumers. Today, these systems are part of everyone’s everyday life, in fact it would be very hard for most to function without using such systems such as mobile phones, navigation devices, personal digital assistants, the greater part of the functionality of modern cars and the Internet – for both professional use and leisure.

The extended flexibility, functionality and diversity of these systems have also been discovered by the creative industries and has resulted in new creative ways by applying SIS in art, music, advertising, design processes and the like. During the parallel session some examples of this new wave of creative initiatives were presented and demonstrated.

Innovations in gaming
Computer games are now seen as an accredited industry and as cultural. But what is the nature of the ideas driving the creative developments and has resulted in new creative ways by applying SIS in art, music, advertising, design processes and the like? During the parallel session some examples of this new wave of creative initiatives were presented and demonstrated.

Open Source: a solution for embedded systems technology?
By Syrine Robert

Today, open source is recognised as an easy and free way to build commodities for IT applications in general. However, when considering software development for embedded systems in industries such as automotive, telecommunication, software development methodologies are highly relevant.

Several potential application domains – telecommunication, manufacturing automation and process control – showed how they are integrating these technologies in their solutions. Interesting questions were raised regarding the applicability and limits of such technologies. These included, the implementation cost at the device level, the real-time capability, and compatibility with process control requirements – real-time control loops, etc.

Investigation of these technologies and their applications was made possible by the ITEA SIRENA project that finished in 2005 and which showed the feasibility. SIRENA won the ITEA award in 2006 for this demonstration.

Thanks should also go to the continuing ITEA SODA and EST SODDIES projects, which had a common stand in the exhibition area. Several presentations were demonstrated, including a real industrial automation machine with a distributed control solution using DPWS embedded in low-cost industrial devices, physically showing the Web of Objects concept.
News

Joint workshop TWINS - MARTES - SPICES - GENE-AUTO projects
Synergies & commonalities

Several projects that can be categorised as ‘software-engineering’ projects are being executed or have finished within the ITEA and ITEA 2 framework. As some of these projects seemed to have a complementary character – such as dealing with life-critical applications – it was decided to have a dedicated one-day workshop for them to identify the commonalities and opportunities. The selected projects were MARTES, TWINS, SPICES and GENE-AUTO. This workshop took place on 7 April 2008 at Barco in Kortrijk, Belgium.

As a result of this workshop, it was established that all these projects are targeting the development process in a software/hardware (SW/HW) co-design context. Nevertheless, the focus of the projects themselves is totally different for all as regards the position in the design flow or domain.

For the technical conclusions, three distinct complementarities and commonalities can be highlighted:

1. Clear differentiation between the projects in focus complementarities, domain;
2. Addressing different subsets of the V-model; and
3. Shares a common view on reducing the climbing part of the V-model.

For the valorisation and dissemination conclusions, we can highlight the following three recommendations:

- Roadmap – e.g. SPICES – is a good means of showing exploitation;
- Plan effort at ITEA level to support dissemination of project results through e.g.
  - (shared) demonstrator projects;
  - Share project industrialisation with other partners/ projects;
  - Institute or body of knowledge – e.g. repository of all project results;
  - EU conference on best practices for embedded software; and
  - Identification of business models.

ITEA Project impact – SIRENA:
Devices Profile for Web Services (DPWS) being standardised at OASIS

A group of companies led by Microsoft submitted for standardisation to OASIS a set of three related standards for identifying, communicating with and controlling network-connected devices of all kinds using Web Services: DPWS, WS-Discovery, and SOAP-over-UDP – collectively referred to as Web Services Device Discovery and Web Services Devices Profile (WS-DD).

DPWS was the linchpin of the SIRENA project, which pioneered its use in embedded devices and produced several open-source implementations (soa4d, ws4d). The SIRENA approach – considered a real breakthrough in the industrial sector – has raised wide interest as evidenced by the unabated popularity of its website. The project received the ITEA Achievement Award 2006 and its results are used in several other ITEA (SODA, ANSO, SHOPS, LOEMS, SO2M) and other (HOMES, Smart Electricity) collaborative projects, as well as in commercial products. Schneider Electric demonstrated that DPWS can be implemented in a commercial-off-the-shelf chip costing less than €4.

The target date for delivering the WS-DD standards – to be offered for royalty-free implementation – is March 2009.

Members of the OASIS WS-DD Technical Committee include Microsoft, IBM, Schneider Electric, CA, Novell, Software AG, Red Hat, Progress Software, WS02, Canon, Fuj Xerox, Lexmark and Ricoh.

With 117 products from 37 vendors currently supporting it, the momentum of DPWS among device manufacturers is steadily growing. DPWS is natively incorporated in Microsoft’s Windows Vista, Windows Embedded CE and NET Micro Framework and will be so in Windows 7 and NET 4.0. DPWS was also adopted by Beckhoff Automation, a prominent vendor in the industrial and building automation fields.
ITEA 2 will open its fourth Call for projects on 16 February 2009. Now is already the time to prepare!

In order to help you prepare a Project Outline, locate potential partners, join existing consortia and/or find out more about the specifics of the Call, we are organising Project Outline Preparation Days on 16 and 17 February 2009 in Istanbul, Turkey.

ITEA 2 stimulates and supports innovative and pre-competitive R&D projects that will contribute research excellence to Europe’s competitive Software-Intensive Systems and Services. SISS are a vital growth engine for Europe’s economy and a key driver of innovation in Europe’s most competitive industries – such as automotive, aerospace, communications, healthcare and consumer electronics. ITEA 2 and its predecessor ITEA have a proven track record with major achievements and results in these industries.

As a EUREKA Cluster programme, our approach is intergovernmental, bottom-up and industry-driven, which allows a project idea to attract funding from participating countries even if it is not a priority for all of them. All member countries in the EUREKA framework give financial support to ITEA 2 projects and ITEA 2 is open to partners from large industrial companies, 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 (POs) are submitted. For those outlines approved, the next step is to submit a Full Project Proposal (FPP). These are evaluated and, if approved, given the ITEA 2 – EUREKA endorsement label. Project participants can then apply for funding in their own countries.

With start-up and international companies such as what are now Thomson and Thales. His last position was General Manager of the French research centre of Thomson. His main involvement has been in software development for interactive image systems and in R&D management. Among other activities, he was responsible for the definition of strategic views and participated in the definition of the worldwide Thomson Research Programme. He was also deeply involved in standardisation and developed patent production.

**Meet the new ITEA 2 Vice-Chairman**

Read about his background

**Philippe Letellier**

Institut TELECOM – Deputy Research Director

**Philippe Letellier**

born in 1957, studied engineering at ENSRM Nancy before obtaining a doctorate in computer science from Paris XI Dauphine. In 2000, he obtained an executive MBA from HEC/CPA to acquire a double culture: technology and business. Philippe has a broad industrial experience (25 years) with start-up and international companies such as what are now Thomson and Thales. His last position was General Manager of the French research centre of Thomson. His main involvement has been in software development for interactive image systems and in R&D management. Among other activities, he was responsible for the definition of strategic views and participated in the definition of the worldwide Thomson Research Programme. He was also deeply involved in standardisation and developed patent production.

Since 2006, he has been Deputy Research Director at the Institut TELECOM, where he is responsible for valorisation, technology transfer and partnerships. In this role, he participates in the building of the innovation ecosystem connecting international companies, SMEs and the academic world around open innovation and research used as a business-development tool.

As of 1 September 2008, Philippe Letellier is Vice-Chairman of ITEA 2.
New compression techniques and algorithms ensure viability of commercial HDTV deployment

While new MPEG4-AVC compression techniques can halve the bandwidth required for high definition television (HDTV), fully exploiting the system also requires that pre- and post-processing modules are available to optimise the complete chain from content creation to end-user. New video compression technology and transmission/reception equipment developed in the ITEA HD4U project means Europe is now ready for the commercial deployment of multi-channel HDTV over digital terrestrial (DTT), satellite and broadband TV networks.

“High definition TV offers big advantages of up to five times that of standard definition TV. But bandwidth requirements are a major challenge, requiring new compression technologies to reduce demands to a minimum. Thomson has developed new encoding technology that made it possible to reduce the bandwidth for a single HD signal to only 6 Mbit/s while conserving good quality. However, as attempts to introduce analogue HDTV’s decade ago showed, it was necessary to prove the viability of the technology in all parts of the distribution chain,” says Patrick Schwartz, Thomson, project leader HD4U.

REDUCING BIT RATES

“The main objective of HD4U was to demonstrate that HDTV was viable for different transmission media,” says Schwartz. The most important technologies developed were MPEG4-AVC video compression to reduce the bit rate of the channel transmitted to the end user, together with the pre- and post-processing techniques allowing quality improvement – such as post-processing to increase the final quality of user experience with LCD screens. Thomson started the HD4U project as it believed the only way to launch HDTV services was to carry out field trials with several different partners. Those partners include display makers, electronic system producers, professional equipment suppliers and operators. “Such collaboration made a difference,” says Schwartz: “A single company could not have done it alone; the technology is too complex.”

Working with ITEA was important. “Not only did it help in finding funding and partners but also in increasing visibility,” he says. “For example, we participated two years ago in Paris at the ITEA symposium in a huge demonstration of HD4U in synergy with simultaneous viewing of the major European HDTV channels broadcasting HDTV and attracting between 400 and 500 people invited to this event.”

IMPROSSIVE QUALITY IMPROVEMENTS

Results of the HD4U project include development of a high-definition video encoder, improved picture quality and the assurance of receiver interoperability. Demonstrations showed impressive improvements in quality are available with the new MPEG4-AVC video compression technology.

“Other important improvements were in modulation and transmission technologies with development of the DVB-S2 standard to reduce satellite bandwidth and IPV encapsulation to enable HDTV to be sent over broadband networks such as ADSL2. These new technologies were needed to increase the number of HDTV channels transmitted – the target with MPEG4-AVC was to reduce bandwidth by a factor of two. A key partner was the University of Nantes that worked closely with Thomson on human visual assessment. This involved two steps: human visual assessment and then seeing how to improve pre-post-processing algorithms,” explains Schwartz. The University of Nantes defined a human visual model and an objective quality algorithm to enable measurement of the quality of the broadcast experience, based on assessments by a panel of 30 people to establish objective criteria.

As a result of HD4U, the university has been able to create a spin-off working on measurement and test tools.

WIDE DEPLOYMENT IN EUROPE

There were already 70 HD channels available in Europe at the end of 2007: 150 channels are expected by 2010. However there is a content gap between the 30 million homes that are HD ready and the one million actually watching HDTV. Part of the reason for this is that HD programming has generally been offered as a premium pay-TV service.

Mass acceptance will involve a move to free-to-air (FTA) platforms. As a direct result of this HD4U project, HDTV is now ready for deployment in many European countries over DTT satellite and eventually IPTV links. French broadcasting started in France this year; it was already available on cable, Germany has HD over cable but some commercial hiccups in FTA satellite broadcasting. Italy will offer FTA DTT in 2009; the Nordic countries started FTA DTT in 2007; Spain already provides HDTV on cable but FTA DTT is unlikely before 2012, and the UK has just started broadcasting HD on FTA satellite, with DTT from 2009.

EUREKA1080 satellite TV operator has chosen MPEG4-AVC for satellite transmission with four HDTV channels commercially launched using technology developed in HD4U. French broadcaster TF1 has commissioned the French audiovisual authority to adopt HDTV for DTT. Four free-to-air HDTV channels and one Pay-TV HDTV channel are transmitted since October 2006 in France. Other channels will soon added once technology will allow transmission of more channels or when additional frequencies will be available. And IPTV operator Maxitel in Finland has shown 95% of its subscribers can receive HDTV at home using ADSL2 network with MPEG4-AVC technology.

HD4U also provided industrial partners with the opportunity to develop prototypes for encoding, modulation, IP encapsulation, set-top boxes and LCD screens and deploy commercial products a year after the end of the project. This includes a second-generation MPEG4-AVC encoder that targets a 50% gain in compression compared with MPEG2, making it possible to increase the number of channels transmitted.

“We have already sold more than one hundred encoders since the end of the project,” adds Schwartz. “Our biggest opportunities are in the USA, thanks to the funding obtained through the ITEA project. Access to this market would have been much slower otherwise.”

Working with ITEA was important. “Not only did it help in finding funding and partners but also in increasing visibility,” Schwartz says. "Mass acceptance will involve a move to free-to-air (FTA) platforms. As a direct result of this HD4U project, HDTV is now ready for deployment in many European countries over DTT satellite and eventually IPTV links. French broadcasting started in France this year; it was already available on cable, Germany has HD over cable but some commercial hiccups in FTA satellite broadcasting. Italy will offer FTA DTT in 2009; the Nordic countries started FTA DTT in 2007; Spain already provides HDTV on cable but FTA DTT is unlikely before 2012, and the UK has just started broadcasting HD on FTA satellite, with DTT from 2009.

EUREKA1080 satellite TV operator has chosen MPEG4-AVC for satellite transmission with four HDTV channels commercially launched using technology developed in HD4U. French broadcaster TF1 has commissioned the French audiovisual authority to adopt HDTV for DTT. Four free-to-air HDTV channels and one Pay-TV HDTV channel are transmitted since October 2006 in France. Other channels will soon added once technology will allow transmission of more channels or when additional frequencies will be available. And IPTV operator Maxitel in Finland has shown 95% of its subscribers can receive HDTV at home using ADSL2 network with MPEG4-AVC technology.

HD4U also provided industrial partners with the opportunity to develop prototypes for encoding, modulation, IP encapsulation, set-top boxes and LCD screens and deploy commercial products a year after the end of the project. This includes a second-generation MPEG4-AVC encoder that targets a 50% gain in compression compared with MPEG2, making it possible to increase the number of channels transmitted. "We have already sold more than one hundred encoders since the end of the project," adds Schwartz. "Our biggest opportunities are in the USA, thanks to the funding obtained through the ITEA project. Access to this market would have been much slower otherwise."
In Europe, the professional area is taking advantage of multiplexing more signals in a given bandwidth to send HD TV programmes in place of standard-definition ones. In the middle of the chain, the distribution area is in the process of replacing analogue signal transmission by digital techniques. And at the consumer end of the chain, users are investing in new flat screens using progressive scan to replace cathode ray tube based TV.

A REAL JIGSAW PUZZLE

“The problem in the HD world is a jigsaw puzzle with different approaches and levels of maturity,” says Dominique Defossez of NXP in France. “And there is much abuse of the term HD.” As a result, professional creation, distribution and TV sets are evolving independently.

“The key challenge is to achieve a homogenous solution covering the whole chain without reducing quality,” says Dominique Defossez. “A second challenge is to achieve full 1080i at 50 Hz: in particular we need to develop interfaces able to transmit the video from the camera to the encoder input with a bandwidth of 360 Mbits/s to optimise the compression and to develop a high-speed encoder.”

Three options exist for compression: the most common and widespread option for signal distribution is MPEG4-AVC, while for programme preparation the preferred choice is JPEG X 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-SVC (scalable video coding) that provides a real HD quality result.

Overall quality increased thanks to 1080p formats at 50 frames/second; the preferred choice is JPEG 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-AVC, while for programme preparation the preferred choice is JPEG X 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-SVC (scalable video coding) that provides a real HD quality result.

End-to-end chain architecture

For example, while TV sets are already offering Full-HD, there is no 1080p broadcasting or multicasting yet, nor any 1080p content distribution. New formats, such as Audio Visual System (AVS), MPEG4-AVC HD84 compression and the SMPTE 421M video codec standard (VC-1) are emerging with no real coherence, requiring trans-coding between applications. And, finally, the new streaming tools such as YouTube or DailyMotion are about to occupy most of the Internet bandwidth, choice of resolutions at the consumer end adaptable to a range of different displays. HDTV Next is looking at all three options.

The new project started only in April 2008 and is still collecting use cases – 17 have been selected to date. It has also identified two main scenarios: video on demand, and displaying HD at home – covering all type of media to control the experience of non-linear content in the middle of the chain, the distribution area is in the process of replacing analogue signal transmission by digital techniques. And at the consumer end of the chain, users are investing in new flat screens using progressive scan to replace cathode ray tube based TV.

The major results expected from HDTV Next include:

- Overall HD quality increased thanks to 1080p formats at 50 frames/second;
- Optimisation of audio content rendering in the home for HD content with access to other sources for entertainment and communication with the focus of common participation in media creation, distribution, and sharing;
- Facilitation of the consumption and production of 1080p 50 Hz HD content by ensuring a backward compatibility with the first HD generation and by integrating into the demonstrations the means of managing self-produced contents from fixed, mobile and/or wirelessly-connected terminals;
- Integration of HD content into a multiple viewing, multiboard and multi-access environment.

End-to-end Full HDTV deployment

HDTV Coherent approach to end-to-end Full HDTV deployment

As commercial deployment of high definition television (HDTV) begins to take off in Europe, the ITEA 2 HDTV Next project has taken up the baton from the HD4U ITEA project to investigate and develop the next-generation HDTV platform and the means of deployment for Full HD performance for both HDTV in-the-home and HD video-on-demand applications. This involves the development and demonstration of a coherent HDTV 1080p 50 Hz end-to-end solution to synchronise the professional content creation, distribution and home user access areas.

In Europe, the professional area is taking advantage of multiplexing more signals in a given bandwidth to send HD TV programmes in place of standard-definition ones. In the middle of the chain, the distribution area is in the process of replacing analogue signal transmission by digital techniques. And at the consumer end of the chain, users are investing in new flat screens using progressive scan to replace cathode ray tube based TV.

A REAL JIGSAW PUZZLE

“The problem in the HD world is a jigsaw puzzle with different approaches and levels of maturity,” says Dominique Defossez of NXP in France. “And there is much abuse of the term HD.” As a result, professional creation, distribution and TV sets are evolving independently.

“The key challenge is to achieve a homogenous solution covering the whole chain without reducing quality,” says Dominique Defossez. “A second challenge is to achieve full 1080i at 50 Hz: in particular we need to develop interfaces able to transmit the video from the camera to the encoder input with a bandwidth of 360 Mbits/s to optimise the compression and to develop a high-speed encoder.”

Three options exist for compression: the most common and widespread option for signal distribution is MPEG4-AVC, while for programme preparation the preferred choice is JPEG X 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-SVC (scalable video coding) that provides a real HD quality result.

Overall quality increased thanks to 1080p formats at 50 frames/second; the preferred choice is JPEG 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-AVC, while for programme preparation the preferred choice is JPEG X 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-SVC (scalable video coding) that provides a real HD quality result.

End-to-end chain architecture

For example, while TV sets are already offering Full-HD, there is no 1080p broadcasting or multicasting yet, nor any 1080p content distribution. New formats, such as Audio Visual System (AVS), MPEG4-AVC HD84 compression and the SMPTE 421M video codec standard (VC-1) are emerging with no real coherence, requiring trans-coding between applications. And, finally, the new streaming tools such as YouTube or DailyMotion are about to occupy most of the Internet bandwidth, choice of resolutions at the consumer end adaptable to a range of different displays. HDTV Next is looking at all three options.

The new project started only in April 2008 and is still collecting use cases – 17 have been selected to date. It has also identified two main scenarios: video on demand, and displaying HD at home – covering all type of networking, including wireless.

end Full HDTV deployment

Coherent approach to end-to-end Full HDTV deployment

As commercial deployment of high definition television (HDTV) begins to take off in Europe, the ITEA 2 HDTV Next project has taken up the baton from the HD4U ITEA project to investigate and develop the next-generation HDTV platform and the means of deployment for Full HD performance for both HDTV in-the-home and HD video-on-demand applications. This involves the development and demonstration of a coherent HDTV 1080p 50 Hz end-to-end solution to synchronise the professional content creation, distribution and home user access areas.

In Europe, the professional area is taking advantage of multiplexing more signals in a given bandwidth to send HD TV programmes in place of standard-definition ones. In the middle of the chain, the distribution area is in the process of replacing analogue signal transmission by digital techniques. And at the consumer end of the chain, users are investing in new flat screens using progressive scan to replace cathode ray tube based TV.

A REAL JIGSAW PUZZLE

“The problem in the HD world is a jigsaw puzzle with different approaches and levels of maturity,” says Dominique Defossez of NXP in France. “And there is much abuse of the term HD.” As a result, professional creation, distribution and TV sets are evolving independently.

“The key challenge is to achieve a homogenous solution covering the whole chain without reducing quality,” says Dominique Defossez. “A second challenge is to achieve full 1080i at 50 Hz: in particular we need to develop interfaces able to transmit the video from the camera to the encoder input with a bandwidth of 360 Mbits/s to optimise the compression and to develop a high-speed encoder.”

Three options exist for compression: the most common and widespread option for signal distribution is MPEG4-AVC, while for programme preparation the preferred choice is JPEG X 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-SVC (scalable video coding) that provides a real HD quality result.

Overall quality increased thanks to 1080p formats at 50 frames/second; the preferred choice is JPEG 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-AVC, while for programme preparation the preferred choice is JPEG X 2000, which is less efficient but offers lower losses. The third alternative is MPEG4-SVC (scalable video coding) that provides a real HD quality result.

End-to-end chain architecture

For example, while TV sets are already offering Full-HD, there is no 1080p broadcasting or multicasting yet, nor any 1080p content distribution. New formats, such as Audio Visual System (AVS), MPEG4-AVC HD84 compression and the SMPTE 421M video codec standard (VC-1) are emerging with no real coherence, requiring trans-coding between applications. And, finally, the new streaming tools such as YouTube or DailyMotion are about to occupy most of the Internet bandwidth, choice of resolutions at the consumer end adaptable to a range of different displays. HDTV Next is looking at all three options.

The new project started only in April 2008 and is still collecting use cases – 17 have been selected to date. It has also identified two main scenarios: video on demand, and displaying HD at home – covering all type of networking, including wireless.

For example, while TV sets are already offering Full-HD, there is no 1080p broadcasting or multicasting yet, nor any 1080p content distribution. New formats, such as Audio Visual System (AVS), MPEG4-AVC HD84 compression and the SMPTE 421M video codec standard (VC-1) are emerging with no real coherence, requiring trans-coding between applications. And, finally, the new streaming tools such as YouTube or DailyMotion are about to occupy most of the Internet bandwidth, choice of resolutions at the consumer end adaptable to a range of different displays. HDTV Next is looking at all three options.

The new project started only in April 2008 and is still collecting use cases – 17 have been selected to date. It has also identified two main scenarios: video on demand, and displaying HD at home – covering all type of networking, including wireless.

For example, while TV sets are already offering Full-HD, there is no 1080p broadcasting or multicasting yet, nor any 1080p content distribution. New formats, such as Audio Visual System (AVS), MPEG4-AVC HD84 compression and the SMPTE 421M video codec standard (VC-1) are emerging with no real coherence, requiring trans-coding between applications. And, finally, the new streaming tools such as YouTube or DailyMotion are about to occupy most of the Internet bandwidth, choice of resolutions at the consumer end adaptable to a range of different displays. HDTV Next is looking at all three options.

The new project started only in April 2008 and is still collecting use cases – 17 have been selected to date. It has also identified two main scenarios: video on demand, and displaying HD at home – covering all type of networking, including wireless.
Creating smart services wherever you want

The LOMS project has determined a roles model, methodology and service-oriented architecture (SOA) based service-creation architecture, based on a service templates paradigm, which makes it easy to create and launch tailored, local and smarter services. Sample services – and service templates – have been demonstrated to prove the concept for various device types and business models, and short-term exploitation opportunities have been identified.

Many network operators are keen to be more than plain bit-pipe providers. They would like to be able to offer a portfolio of so-called ‘long tail’ services, addressing the smaller service markets among their large customer bases and that they would like to manage and charge according to flexible models, while keeping their operational expenditure targets within justifiable limits.

At the same time, more and more businesses want to use Internet and Internet technologies to market their products and services, particularly to mobile users and via new channels like digital TV. However, designing and establishing more advanced web business that leverages underlying technology to a valuable extent requires specialized knowledge that is just not available in most organizations – especially small businesses, independent professionals and others keen to participate in the e-trend by offering their services to their local niche of customers. Such people generally lack the technical know-how to address these specific niches.

While various attempts have been made over the past few years to develop suitable offerings, technical knowledge is still required. LOMS therefore set out to combine service creativity easily with rich, powerful features of a well-controlled service environment. It has achieved this by removing the many barriers through the introduction of new intermediaries in the value chain. These consist of enabling services on service platforms, building on the popularity of the Internet, combining the benefits of mass creativity and mass involvement, with the enabling functions of existing telecommunication- and media-network deployments.

To populate such an ecosystem of local services, LOMS has introduced a number of intermediate value chain actors in the service-creation process:

- Platform operators, who provide the run-time platform and expose network-enabled enabling services through it, either related to network operators or not.
- Service operators, who add domain-specific knowledge into LOMS service templates for a specific market sector, possibly in multiple, abstracting layers, and
- Service providers, who drive the market by launching new services based on LOMS service templates, fast and easy, addressing the demand of their specific – local – market niche.

At the architectural level, LOMS has identified so-called service templates as the way to provide the actors in the service-operator role with a means to encapsulate their domain or technological expertise for easy use directly by service providers, or by higher layer service operations.

PREREGISTERED SERVICE ORCHESTRATION

The LOMS service templates approach is built on general SOA principles but, unlike other approaches to easy service creation, the templates enable service operators to predict the orchestration flow between underlying building blocks according to a software variability principle. The LOMS approach was demonstrated in two different domains:

1. Local news publishing – a business to consumer application that involved map-related news items, as well as personalized TV community news.

LOMS demonstrated this using the web-services business-process execution language WS-BPEL as well as other languages – inside the templates. This gets transformed as part of such individual template application, using simple questionnaire answers by service providers as inputs before launching the provider’s specific service.

As a result, service providers do not have to become involved in the basic design but can concentrate on the service business itself, while the service and platform operators define exactly how the service is operated, performing the operations business in a ‘macro’ view.

Moreover, this makes it possible to extend SOA principles across the entire service lifecycle, as each actor creating and operating a service template can make it self-contained concerning the data provisioning and code deployment it allows, supporting separation of concerns between the actors involved. Such service templates can also encapsulate logic for user subscription, as well as management by the service provider, for the actual service logic.
Model-based approach cuts cost of complex user interfaces

The EMODE project showed that it is possible to simplify user interaction for complex business systems at low cost. Use of a model-based approach to design the user interface enables automation of development and so improves productivity, maintenance and evolution by a factor of three. This ensures gains in terms of efficiency, effectiveness, satisfaction and cost. Moreover, models used for design can be reused to manage interactions, ensuring coherence between user requirements, designers' developments and final operation.

The return on investment is linked to the introduction of new modalities and reusability of models thanks to:
- Increased productivity through time saving in design and development phases;
- Easier adaptation to new systems thanks to a new interaction architecture;
- Easier adaptation to new customer-specific needs;
- Better maintainability thanks to model manipulations, automatic generation and reusability.

2. A new interaction paradigm made possible by the use of design models during the runtime phase. This provides coherence between user requirements expressed during the design phase, and the interaction experience — both classical HMIs and new interactive modalities. At the end of the design process, the interaction — use of modalities to achieve the user’s task — is the real front-end of the user needs and totally matches these requirements. EMODE’s interaction architecture and model-based approach lead to a natural multimodal interaction with no user frustrations.

While user interfaces for domestic equipment or large systems at low cost. Use of a model-based approach to design the user interface enables automation of development and so improves productivity, maintenance and evolution by a factor of three. This ensures gains in terms of efficiency, effectiveness, satisfaction and cost. Moreover, models used for design can be reused to manage interactions, ensuring coherence between user requirements, designers’ developments and final operation.

The EMODE project showed that it is possible to simplify user interaction for complex business systems at low cost. Use of a model-based approach to design the user interface enables automation of development and so improves productivity, maintenance and evolution by a factor of three. This ensures gains in terms of efficiency, effectiveness, satisfaction and cost. Moreover, models used for design can be reused to manage interactions, ensuring coherence between user requirements, designers’ developments and final operation.

While user interfaces for domestic equipment or large systems at low cost. Use of a model-based approach to design the user interface enables automation of development and so improves productivity, maintenance and evolution by a factor of three. This ensures gains in terms of efficiency, effectiveness, satisfaction and cost. Moreover, models used for design can be reused to manage interactions, ensuring coherence between user requirements, designers’ developments and final operation.

The EMODE approach applies models as a means of abstraction that can be augmented step-by-step in a linear process with platform-specific internalised model transformation. This makes possible a semi-automatic transfer into an executable software system. As a result, EMODE’s methodology simplifies the design of adaptive multimodal interfaces. New software architectures closely separate system design from user interface design. Modelling techniques are used to design generic user interfaces that can then be tailored to specific application domains, users and context of use. Last but not least, model transformation techniques make the design and implementation process as automatic as possible and thus considerably lower the cost of user-interface production.

PROVEN IN FOUR DIFFERENT DOMAINS

The runtime environment for adaptive multimodal applications developed in EMODE was validated in a series of demonstrations covering four domains with different kinds of users:
1. Daimler developed an interface offering vocal commands for an advanced in-car navigation system. A particular advantage was the ability to access ‘hidden’ commands quickly — a single vocal command could replace up to six mouse clicks. It was also possible to develop the whole interface in only two or three weeks;
2. Philips showed the benefit of the EMODE approach in a home entertainment system application, enabling domestic multimedia server systems to be controlled by a mobile phone;
3. NAVIRAS proved the efficiency in the complex and constrained domain of maritime surveillance. The purpose of the system was to identify ships in a predefined zone as well as detecting and processing events such as accidents or pollution. The interface was designed to use natural language and dialogues for multimodal interaction; and
4. BASF demonstrated the design and runtime approach in the context of mobile plant maintenance.

From an interface developer’s point of view, the evaluation of the EMODE approach has impressively demonstrated its benefits for model-based HMI development. After an adequate initial training phase supported by extensive documentation, applications supporting text as well as voice modalities can be implemented in less time than with traditional methods and tools. Following the model-based design approach, EMODE demonstrated performances three to four times better than usual for productivity, maintenance and evolution with an automation of the development. In case of porting, only specific code has to be redone.

EMODE not only proved that such kind of design and modalities are cost-effective but the models used for design can be reused to manage the interaction, ensuring coherence between user requirements, designers’ developments and final operation.

The EMODE approach applies models as a means of abstraction that can be augmented step-by-step in a linear process with platform-specific internalised model transformation. This makes possible a semi-automatic transfer into an executable software system. As a result, EMODE’s methodology simplifies the design of adaptive multimodal interfaces. New software architectures closely separate system design from user interface design. Modelling techniques are used to design generic user interfaces that can then be tailored to specific application domains, users and context of use. Last but not least, model transformation techniques make the design and implementation process as automatic as possible and thus considerably lower the cost of user-interface production.

PROVEN IN FOUR DIFFERENT DOMAINS

The runtime environment for adaptive multimodal applications developed in EMODE was validated in a series of demonstrations covering four domains with different kinds of users:
1. Daimler developed an interface offering vocal commands for an advanced in-car navigation system. A particular advantage was the ability to access ‘hidden’ commands quickly — a single vocal command could replace up to six mouse clicks. It was also possible to develop the whole interface in only two or three weeks;
2. Philips showed the benefit of the EMODE approach in a home entertainment system application, enabling domestic multimedia server systems to be controlled by a mobile phone;
3. NAVIRAS proved the efficiency in the complex and constrained domain of maritime surveillance. The purpose of the system was to identify ships in a predefined zone as well as detecting and processing events such as accidents or pollution. The interface was designed to use natural language and dialogues for multimodal interaction; and
4. BASF demonstrated the design and runtime approach in the context of mobile plant maintenance.

From an interface developer’s point of view, the evaluation of the EMODE approach has impressively demonstrated its benefits for model-based HMI development. After an adequate initial training phase supported by extensive documentation, applications supporting text as well as voice modalities can be implemented in less time than with traditional methods and tools. Following the model-based design approach, EMODE demonstrated performances three to four times better than usual for productivity, maintenance and evolution with an automation of the development. In case of porting, only specific code has to be redone.

EMODE not only proved that such kind of design and modalities are cost-effective but the models used for design can be reused to manage the interaction, ensuring coherence between user requirements, designers’ developments and final operation.

The OSIRIS project targeted development of a cross-domain open-source platform that supports service provision, aggregation, delivery and dynamic contextual adaptation across many different domains and that makes use of the Internet as a powerful business demonstrator is now being evaluated by the Norwegian authorities to simplify future electronic tax declarations by focusing on real value. Moreover, services are currently driving the economy in the Organisation for Economic Co-operation and Development (OECD) countries. ICT services were already more than two thirds of ICT sector value added in most countries in 2003.

However, despite current IT technology leaders investing heavily in open-source development, few organisations really understand and foresee the key role it will play in future global service ecosystems. In all business domains, value is strongly related to knowledge about the customer. There is a key difference between products and services; a product manufac- turer has limited information about a customer once ownership is transferred. However, a service system maintains close interaction with the user, allowing for continuous improvement.

Service systems are independent with value measured in terms of quality of service delivered to the customer — human or machine. They have clear competitiv- e advantages compared with products as their close relationship with users allows continuous improvement and greater personalisation.

OSIRIS (ITEA ~ 04040)
J. Barrientos, Philips, Delft, The Netherlands

Developing a multi-access service
OSIRIS set out to demonstrate the technical possibility of delivering service systems for multiple domains from the same platform that allowed deployment and evolution in run-time without systems integration. Demonstra-
A service system for the Norwegian Tax Directorate illustrates the achievements of OSIRIS business demonstrators. Statistics for Norway show services dominate its ICT sector. Moreover the public sector is in the driving force when applying ICT for services, with the Tax Directorate as the locomotive. A public web-based self-declaration service was launched in 1999. At the same time, the Directorate enabled reporting for companies via the web and directly from enterprise resource planning (ERP) systems.

Since the late 1990s, telecommunications companies had co-operated with the Technical University in Trondheim to develop a platform and laboratory for mobile services. Karde and TellU – subcontractors to ICT-Norway in OSIRIS – used these results to develop mobile services. An important spin-off was a universal user interface available in mobile technology and investigate if mobile phone joining was twofold: to gain experience and competence for mobile technology and digital TV channels could be used for electronic tax services. This is a legal issue being discussed in the Tax Directorate.

During the project it was agreed to create a set of building blocks enabling upfront definition and development of interactive tax services and downstream access to such services through mobile phones, digital TVs and the web. The idea was that a user could initiate a tax service session in one channel and, later, complete the activity through another channel.

Services were implemented in XForms and OSIRIS developed an XForms engine for the mobile phone. The same engine was used for the digital TV, as it was felt the TV was more like the phone than the web.

An important spin-off was a universal user interface for mobile phones to make electronic public services accessible to anyone, including those with cognitive and other difficulties. It is possible to add audio help features. The sound is streamed in real time from the server to the mobile phone. An adaptation mechanism enables constant matching of sound quality to available bandwidth.

Services accessed on small devices such as mobile phones require short, precise explanations. On the web, complex computing and software middleware infrastructure.

OSIRIS demonstrated that investment in a single open-source platform can benefit service systems and virtual application in multiple domains. In dynamic building approaches also seems close to ‘Cloud’ principles for on-demand computing and software middleware infrastructure.

The OSIRIS project contributed to understanding of future challenges. Due to the close interaction between users and service systems the principles for the next generation of global service systems should be defined to avoid user lock-in and allow sustainable open-service ecosystems. Most OSIRIS partners together with others will elaborate further achievements in a follow-up project: DSAMI-Commons (Open Source Ambient Intelligence – Commons).
Portugal keen to expand the EUREKA effect

EUREKA makes a major contribution to European competitiveness and has an important role in the realisation of the European Research Area (ERA). Portugal is keen to continue the proposals made by Slovenia to widen membership and increase visibility as it takes over the chairmanship of the EUREKA research network. Portugal was one of the original members of the network over 20 years ago and this is the second time that it has held the chair.

“EUREKA is a flexible network that has already seen more than €26 billion of public-private investment in over 3,000 projects in its 23 years of existence,” says Manuel Nunes da Ponte, Portuguese chair of the EUREKA High Level Group. The network now has some 40 members and the information and communications technology sector accounts for some 23% of its effort.

Clusters like ITEA 2 play a major role in EUREKA, offering a strategic view with a critical mass of key players including large companies, SMEs, universities and research institutes. The Clusters are largely autonomous, developing their own roadmaps and evaluating projects accordingly. However, EUREKA welcomes and indeed needs the input from the Clusters. “Our intention is to continue to get closer to the Clusters and to open up network activities to Cluster participation,” says Nunes da Ponte.

NEW IDEAS AND NEW ACTORS
The new chair has already got off to a strong start with the success of Eurostars – the joint EUREKA-EU programme for R&D-performing small and medium-sized enterprises (SMEs). This programme is designed to align and synchronise relevant national research and innovation efforts in a joint programme funded by both the Commission and participating member countries, marking an important contribution to ERA. In its first call a third of the proposals are addressing ICT topics, demonstrating that Eurostars significantly strengthens ICT research and innovation in Europe. “Eurostars is bringing in new actors and new ideas,” says Nunes da Ponte.

Nunes da Ponte sees two major challenges for EUREKA for the future:
1. **EUREKA and ERA:** In future we expect more outsourcing of R&D activities by the European Commission – a role in which EUREKA has already demonstrated its ability through Eurostars with trustworthy evaluation by trustworthy experts; and
2. **EUREKA outside Europe:** currently only 2% of the EUREKA projects have non-European partners but there is growing interest for cooperation from industrialised countries as well as emerging and developing economies.