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EUREKA

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Editorial

We are at the end of the ITEA 2 story and at the dawn of ITEA 3. You will find in this magazine the last harvest of the ITEA 2 Call 8 with the usual key topics like software engineering and security as well as some hot topics like Smart Cities with a focus on water management, city planning and services or new education tools like the Massive Open Online Course (MOOC), which appears to be becoming the heart of international university-level education, with huge competition worldwide. We can expect impressive impact on the market from many of these new advanced projects.

One of these impactful projects comes in the shape of MEDIATE, a project that not only tackles some societal health challenges but has already had some impressive impact on the market, offering a unique screen for the different image modalities in the hospital. With the digital world under huge security pressure, PREDYKOT and SPY pushed a lot of innovations in this key ITEA topic. Have a look at their innovation reports.
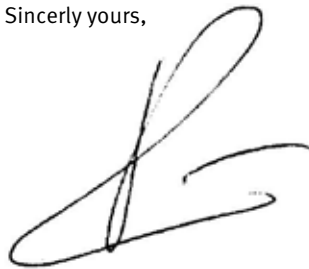
Turning to the key topic of open innovation, the ITEA paradigm to speed up access to the market, I read with interest the Finnish initiative with DIGILE Ltd. as a centre that focuses on software, with all the leading IT companies as shareholders. Mr. Komulainen, Tekes director Growth companies, explains: "Besides the R&D project funding, we want to promote networking between industry and academia." It is a good example of what we are doing at the European level with our ITEA projects. I want to keep in mind the quote from the SME WhileOnTheMove: "ITEA is an excellent way of networking – finding new contacts, potential partners and even business leads. And at the events that are organised you get the opportunity to showcase your company."

Furthermore, big data is the big hype but also actually a hot topic in the market. We can see it from the different projects' focus or in the usage of these technologies in these different projects. Francis Jutand, Scientific VP of Cap Digital, has been involved in setting up Teralab, the French big data platform for the R&D community. We asked him to enlighten us on the business opportunities of this big data, and what the European potential could be after the massive American lead on this topic.

In this intermediate period between ITEA 2 and ITEA 3, with a calendar change to optimise the time between idea and project start, we are organising a European tour to disseminate the added value of the ITEA programme and to further strengthen the ITEA community.

Finally, ITEA champions Happiness. Happiness is the family spirit. Franz-Josef Stewing, one of the initiators of ITEA, gives a testimony of his personal interest in ITEA during his 16 years of involvement. Happiness is also about solving societal challenges. MODRIO enhances modelling capabilities to reduce costs as well as to analyse Failure Mode and Effect Analysis in energy power plants.

Sincerly yours,

Philippe Letellier

Research: key ingredient for software innovation in Finland

R&D and innovation are important for the national economy and welfare. The impact of innovation is widely disseminated throughout the national economy and society at large; it raises prosperity and employment levels as well as enhances the vitality of regions. Several Finnish and foreign studies show that public R&D funding for companies serves to boost corporate R&D investments that, in turn, substantially increase corporate expertise and networking, generating patents and new products, processes and services.

Tekes is the Finnish Funding Agency for Innovation, the most important publicly funded expert organisation for financing research, development and innovation in Finland. Its goal is to boost wide-ranging innovation activities in research communities, industry and service sectors. The purpose of Tekes funding is to encourage businesses to engage in more R&D and so reap the benefits of new expertise and innovations that ultimately contribute to the welfare of citizens and of the environment. Tekes promotes a broad-based view on innovation, not only funding technological breakthroughs but also emphasising the significance of

service-related, design, business and social innovations.

Focal spearhead
Kari Komulainen is the organisation's director for growth companies. He explains the importance of ICT in the Finnish economic picture and the role that Tekes plays in supporting the innovation drive that is so essential to the country's economy and welfare. While the ICT and software industry itself impressively employs around 39,000 people and has annual revenues of some 5.4 billion euros, the impact it has on other industries is even more significant.

A recent survey, revealing that a further 10,000 software developers were being employed by non-ICT companies in Finland alone and a third of all these industries' revenues (120 billion euros) were software dependent, makes it quite evident why software innovation is a focal spearhead in Finland. "And in the context of ITEA," Komulainen points out, "it is important to create a convergence for those who develop ICT solutions and those who apply these solutions. Increasingly smart solutions. And with natural resources becoming ever scarcer, the importance of smart solutions will grow – smart energy, smart mobility, smart cities."

Public-private collaboration

For both Finland and Europe, research is a key ingredient, in terms not only of maintaining a competitive edge but also of ensuring that the practical needs of industry are met. "The research has to be relevant," Komulainen says. "and the ITEA approach is one that we favour in this sense." The public sector in Finland is paving the way for relevant research in two main ways: through Tekes and the Academy of Finland there are long-term funding schemes for telecommunications, software and ICT research applied in areas like healthcare, logistics and gaming; grants and loans are provided to individual companies for really innovative and higher risk research and development projects. A recent development in the Finnish innovation landscape is the creation of the Strategic Centres of Science, Technology and Innovation, or SHOKs. They are industry-led organisations that design and manage national innovation programmes. Since software is an essential ingredient and enabling technology in so many industries, the establishing of DIGILE Ltd. as a centre that focuses on software, with all the leading IT companies as shareholders, is an important step. Basically, what this bears witness to is the collaborative effort being made in a public-private partnership structure. A policy paper called "ICT 2015 - 21 Paths to a Frictionless Finland" published last year underlined the strong commitment from both the public and private sector to work together to promote ICT whereby the research activities are privately driven and publicly supported.

Adding value

Tekes is an organisation that adds value in two ways – through the funding, of course, for companies and research organisations but also, complementary to the funding, networking. "We want to promote networking between industry and academia," Komulainen explains. "We create incentives, especially for the research community, to work with industry. To facilitate this we adjust our funding mechanism and criteria to ensure that the research organisations that work with industry can gain competitive advantages in the competition for public funding."

The role of programmes such as the EUREKA Clusters, including ITEA, and the EU framework programmes are important, especially in respect of international networking. "ITEA is a prime example of an impactful international programme in a highly competitive technology domain. If you want to maintain the quality of your research, you have to work in an international context and collaborate and share with your international peers. If you want to grow your business, you can't do this in the saturated home market – you must go beyond your borders." This is where the partnerships and networks within the ITEA context provide a very feasible and readily available way of finding partners. As a country that has a strong modern tradition in telecommunications, standards and compatibility, programmes like ITEA help to galvanise efforts in this respect and to create a larger and more interesting market. Furthermore, the benefits of collaboration are evident in the access that the actors gain to the results of others. "Working together and sharing results does mean an avoidance of unnecessary duplication or having to invent the wheel on your own. This pays off in accelerated development and time to market."

In the Finnish innovation landscape of the software industry over the past couple of years, the presence and role of SMEs has been increasing fast as the number of successful and growing start-ups has expanded exponentially. This phenomenon also has an impact on the innovation practices of the larger companies. Tekes sponsors through its funding this collaboration between the small and large companies, helping these smaller companies adopt technologies and become partners of the larger players in a relationship where both partners can learn from each other.

Open Digital Market & the Industrial Internet

While there are still many legal and technical obstacles for the open digital market, it is clear that this needs to be in place if the industry is to benefit from a market of more than half a billion users and consumers. Retail sales and the media are examples of business activities in which digitalisation is coursing through changes right now. A similar upheaval is at hand in manufacturing as well.

Industry has already utilised data technology in many ways, both in products and their design, and also in the direction of production and automation. Nevertheless, changes being spurred by the industrial internet and new manufacturing technologies are so comprehensive that German industrial interest groups are using the expression 'Industrial revolution 4.0' to describe this phase of development. The industrial internet is a key driver of the industrial revolution. The products and systems are capable of collecting information about their activities and exchanging it with each other. "The forerunners of this revolution will reap the greatest benefits," Komulainen suggests, "and Tekes is keen to finance the trailblazers who want to upgrade products, services and production with the help of the industrial Internet and new manufacturing technologies."

More information
www.tekes.fi

"ITEA is a prime example of an impactful international programme in a highly competitive technology domain."

Successful start-up:
WhileOnTheMove

WhileOnTheMove was established in 2010 during the ITEA 2 project Smart Urban Spaces (SUS), responding to the clear need for a solution that utilises Near Field Communication (NFC) in a day-care environment to register the attendance of children and act as a messaging platform. This request came from the city of Oulu and Forum Virium, representing the city of Helsinki. "So we got on with the R&D development and within just six months we had finalised the first release of the product. Currently our key business area is mobile NFC solutions for cities and their citizens," explains Kristiina Ilkka, Sales and Marketing Director of this SME. "Our value proposition is to create more time with children by automating certain things to allow personnel at day-care centres to focus on being with the children, which is why they are there, instead of sitting at a computer and doing routine administrative tasks."

Software enables amazing things to happen

Looking at the role and significance of software-related research and research funding in her domain, she is firmly convinced that public funding is crucial to the small yet innovative player that her SME is. "We believe that this is very important in helping start-up companies get their software development projects from design board to ready-made products. Without this support many good products would never be launched." WhileOnTheMove has benefited from the funding made available by Tekes, the Finnish Funding Agency for Innovation, which provided support in the way of funding the company's innovative R&D projects and informing it about future projects.

Ilkka underlines the importance of software, both for her company and in the broader picture of growth and exports, suggesting that this has become the governing factor especially in service industries. "For a small company like WhileOnTheMove, sophisticated software allows creative people to do really amazing things without the need for large offices and all the overheads that brings with it." And this is where publicly funded research comes into its own; when SMEs can benefit from the results of such research in software development, they can close the gap and become more competitive. But an agency like Tekes has another important role for SMEs. Ilkka: "They can act as a kind of sounding board, too, reviewing the ideas and advising on their feasibility and viability."

Access to knowledge, expertise and insight

Similarly, involvement in the ITEA programme helped the SME tackle the challenge of defining and designing a product to meet end-users' requirements. "Thanks to the ITEA 2 project SUS in which we became involved," Ilkka says, "we were able to do this through the companies and people who were part of this project. Working in a project like this gave us access to knowledge, expertise and insight that otherwise would have been more time-consuming (and therefore more expensive) to come by. That's an important consideration for small companies where there is not so much scope available for such investigations. We also got the chance to introduce our product to other participating countries like France and Spain, so this provided a good way to get feedback about whether our product was suitable for these markets, too." Feedback has convinced the SME that its product has some market opportunities outside Finland as well. "ITEA is an excellent way of networking – finding new contacts, potential partners and even business leads. And at the events that are organised you get the opportunity to showcase your company."

International context

As for possible involvement in future projects, Ilkka is clear about the need for an incentive for her company to participate. "For us, it is not just a question of participation but also of commercialisation. At the end of the journey there has to be a reward." This is a message that applies to most other SMEs. But the value of such programmes and projects to SMEs is clear through the sharing and exchange of ideas and knowledge that take place. Equally for Finland, as a relatively small country (by population, anyway), programmes like ITEA with its very international composition and context help to lower export barriers, and ultimately remove obstacles to growth in other countries for companies like WhileOnTheMove.

More information
www.whileonthemove.com

Call 8 projects

addressing a wide range of topics

The result of Call 8 is 19 FPPs comprising 3679 person-years (PY) – which is a 42% increase on the previous Call – and involving 19 different countries. These figures demonstrate again and again the ITEA spread throughout Europe, and beyond. With 40% of the PY required for SMEs, plus strong involvement from the industrials and a bit less from the academics, it remains a good balance between our different kinds of partners. This shows how successfully ITEA mobilises innovative SMEs around large global industrial leaders to push innovation worldwide.

The global quality of the proposals has been evaluated as rather good with three top-ranked projects and three potentially seizing the high ground. The main themes arising from this Call are:

- S/W & System Engineering
- Security
- Health & Wellbeing
- Internet
- Industrial Management
- Smart Cities
- Education

S/W & System Engineering remain a key topic for ITEA with 3 proposals. The focus is on:

- Ongoing development of a tool chain platform for automotive embedded multicore systems with AMALTHEA4public which intends to integrate results of AMALTHEA and other publicly funded projects for fast exploitation of all these results.
- Continuous integration of distributed and highly specialised developments aircraft structures and systems for IDEaliSM targeting an efficiency gain of 50% and a time-to-market reduction of 50% in specific areas.
- COLOC, a disruptive proposal focusing on Concurrency and Locality Challenge for HPC at a time when it is no longer sufficient to endlessly increase computing power but to optimise data memory management.

Security is a second historically strong topic for ITEA with 4 proposals, and a focus in this Call on:

- APPS, as a follow-up of the previous RECONSURVE project, will contribute to surveillance systems based on plug & play solutions well adapted to complex and dynamic critical infrastructures such as coastal areas and harbours.
- FUSE-IT would like to unite building management system energy grids, building security and information networks especially in the context of smart critical sites.
- INSIST is another case of ITEA projects crossing two existing independent businesses, with a proposal to increase comfort and safety of public spaces by linking video surveillance and light management technology into a smart connected platform and ecosystem.
- In cloud computing, in which ITEA has already invested a lot to support businesses, InCloudInG targets an inter-cloud environment to allow simple-to-use business applications from several cloud providers with robust and efficient identity management as a strong enabler for cloud adoption.

Health & Wellbeing is back with three good quality proposals:

- Wellbeing services deployment requires more integrated sensors so CareWare is developing wearable sensors, electronic textiles, physiological measurements and personal health services.
- With climate control, a massively deployed tool for wellbeing, the CLIMWELL project will define an integrated climate control system

to adapt the Indoor Environmental Quality (IEQ) to the occupants of the building.
- Building on the successful investment by ITEA in a family of projects on advanced image modalities management, BENEFIT is a follow-up aimed at improving personalised models for workflow and clinical decision-support systems.

Internet is the business revolution of recent years so it is not a surprise to see three ITEA proposals dedicated to it:
- Machine-to-machine is a promising trend whose standards are not yet there so the smart M2MGrids project is focused on creating enablers for a dynamic cyber-physical information business ecosystem connecting the physical world with the business processes of companies in real-time.
- With Internet characterised by access to huge sources of information, the DART proposal will deliver a scalable, adaptive and robust open-source service framework for intelligence support, encompassing the complete processing chain, from the identification of raw data sources to a tailored decisional knowledge presentation.
- Internet is extremely powerful but requires a

more natural user interface, with continuous lower cost operation so VAIPro is a platform that aims to generate Virtual Intelligent Artificial Professionals to interact with users in a nearly natural human way.

Industrial Management is vital to European competitiveness, so ITEA is pleased to have two proposals on this topic:
- Complex systems generate complex documentation requiring simple semantic browsing tools, so the ModelWriter project will set out to develop an integrated authoring environment combining Semantic Word Processing with a Knowledge Capture Tool.
- With big industry like automotive being confronted by a more dynamic market, InValue aims to optimise the asset value of companies in anticipation of continuous market change to ensure the best utilisation of machinery worldwide.

Smart Cities is becoming a hot topic in ITEA with three new proposals for this Call:
- Water is surely the scarcest resource for humanity so the WATER-M project deals with the interoperability, real-time, big data and heterogeneous data challenges to find

solutions for a Smart Water Network.
- The worldwide demographic trend of urbanisation has a direct impact on democracy – C3PO aims to provide a cloud collaborative and semantic platform for urban co-design.
- This movement toward the cities requires the deployment of more and more services so iCityServices targets the management of city resources through a platform design that allows the effective integration of data and services across multiple domains and sectors.

A new topic for ITEA is Education, an area which will become a global arena sooner or later. Some American players have already moved in this direction and have prepared some global proposals like the one we received:
- MOOC TAB aims at creating a tablet-based secured platform dedicated to lifelong learning using an on-demand open-source Massive Open Online Course (MOOC) platform stored on local, secured sovereign clouds.

A total of 19 projects were labelled in Call 8. The projects address a wide range of topics, but can be **clustered in the following main themes:**

Themes	Call 8 projects
S/W & System Engineering	AMALTHEA4public, IDEaliSM, COLOC
Security	APPS, FUSE-IT, INSIST, InCloudInG
Internet	M2MGrids, DART, VAIPro
Health & Wellbeing	CareWare, BENEFIT, CLIMWELL
Industrial Management	ModelWriter, InValue
Smart Cities	WATER-M, C3PO, iCityServices
Education	MOOC TAB

DART – 13003
ADaptable SituAtion awaReness for InTelligence
Project leader: *Thales (France)*

Information is a strategic resource that must be smartly managed to be able to transform data into deeper insights and strategies about business and future uncertainty.

DART will propose a new intelligence support system concept in diverse fields such as customer, economic, multimedia, city and noise pollution intelligence. Based on social situation awareness, DART applies the process of intelligence to create tailored decisional knowledge that supports specific decisions made by individual or groups.

iCityServices – 13008
Login to the Smart City: making cities smart using a rule based layered architecture
Project leader: TNO (Netherlands)

Today more than half of all people live in urban areas. By the middle of the 21st century, this will swell to 6.4 billion, creating formidable urban challenges in the area of liveability, sustainability and economic prosperity. iCityServices addresses core challenges in managing city resources through a novel, bottom-up platform design that enables innovative ways to involve users and exploit innovations in semantic-based reasoning to enhance intelligent and personalised ways of interacting with end-users.

M2MGrids – 13011
Smart M2M Grids for a Cyber-Physical Information Ecosystem
Project leader: VTT (Finland)

This project focuses on creating enablers for a dynamic cyber-physical information business ecosystem connecting the physical world with corporate business processes in real-time by: connecting physical world sensors, actuators and various embedded devices and machines (physical M2M objects) with IT systems; enabling information management for smart interaction with physical M2M objects and IT back-office systems; enabling smart information exchange between selected business cases to make the future world smart, smooth and secure for consumers/prosumers.

VAIPro – 13012
The Virtual Artificial Intelligent Professional
Project leader: Natlanco (Belgium)

This project aims to make a major step forward in human-machine interaction and ease of information gathering by improving the quality and integration of current human-like communication technologies, such as speech recognition, text-to-speech and 3D animation. The technologies will be provided as individual components with standardised interfaces via a common platform to significantly reduce development time from months to days for application and service providers to generate a virtual artificial intelligent professional (VAIPro).

InValue – 13015
Industrial Enterprise Asset Value Enablers
Project Leader: TWT (Germany)

The main goal of InValue is to support new asset management paradigms by developing and demonstrating an open and shared integrated service platform that supports overarching data management processes in today's industrial domains across the whole value chain of information. The InValue platform will rely on existing standards while combining novel and integrated solutions for the content and knowledge management of heterogeneous information derived from various sources to enable companies to implement 'boundless enterprise'.

C3PO – 13016
Collaborative City Co-design PlatfOrm
Project leader: Barco (Belgium)

C3PO aims to provide a Cloud collaborative and semantic platform for city co-design, covering the whole urban project development process where cities empower, encourage and guide different stakeholders (citizens, decision makers, architects, etc.) to develop an urban project together. C3PO can be seen as an open and generic intermediary that enables the interaction between existing applications through a unique multi-dimensional semantic repository so that existing applications and data sources can be capitalised on.

AMALTHEA4public – 13017
Enabling of Results from AMALTHEA and others for Transfer into Application and building a Community around
Project leader: Bosch (Germany)

The AMALTHEA4public context is software engineering for embedded systems – predominantly, but not limited to, automotive systems. Its aim is to enable efficient and effective software engineering for embedded multi-core systems and integrate the results of various publicly funded projects with new developments and use the results of AMALTHEA accordingly to foster transfer into application and establish a community around the combined and continuous tool chain platform. AMALTHEA4public also addresses additional domains like ICT and automation.

INSIST – 13021
Integrated service delivery for citizens' safety and comfort
Project leader: Philips (Netherlands)

Urban spaces are full of standalone sensor-based installations of different services designed according to their own purpose and requirements. INSIST proposes an integration of these sensor-based systems by developing a smart connected ecosystem for public spaces so that the sensor data can be efficiently used and value added services based on data fusion from multiple sensor systems offered in the areas of smart lighting, surveillance, traffic management, advertising and atmosphere, business intelligence and building management.

FUSE-IT – 13023
Facility Using smart Secured Energy & Information Technology
Project leader: Cassidian (France)

FUSE-IT addresses the need for a sustainable, reliable, user-friendly, efficient, safe and secure Building Management System (BMS) in the context of smart critical sites to solve the dilemma between efficiency and security in intelligent and strategic buildings. The results will be a smart secured building system, incorporating secured robustly interconnected shared sensors, effectors and devices, a core building data processing & analysis module, a smart unified building management interface and a full security dashboard.

COLOC – 13024
The Concurrency and Locality Challenge
Project leader: Bull (France)

With the volume of data handled by HPC applications growing dramatically, data management (memory allocation and access) and data storage now appear to be a real barrier preventing the ful exploitation of the power of modern multi/many-core processors. So COLOC aims to design, implement and validate a new approach to provide software vendors and simulation service providers with methodologies and tools to develop their applications to gain optimium value from expensive and heterogeneous computing resources.

CLIMWELL – 13026
Climate and Well-Being Improvement in Buildings
Project leader: *Philips (Netherlands)*

The Indoor Environmental Quality (IEQ) of a smart building is directly linked to the wellbeing of its occupants. CLIMWELL aims to define, develop and implement an integrated climate control system to adapt the IEQ to the occupants of the building, gathering fundamental insights that relate IEQ to wellbeing, and developing algorithms and software geared towards optimising the healing environment and wellbeing of patients,the workflow efficiency and job satisfaction of staff andthe building performance (energy savings).

ModelWriter – 13028
Text & Model-Synchronised Document Engineering Platform
Project leader: *SpaceApllications (Belgium)*

The objective of ModelWriter is to bring a quantum leap in the productivity of technical authors and to improve the quality (consistency, completeness) of these documents that, in turn, will enhance the quality of companies' products, e.g. via a reduction of cost of product defects. The project envisions an integrated authoring environment called 'ModelWriter', which will be locally used by each author/contributor, combining a semantic word processor and a Knowledge Capture Tool.

WATER-M – 13029
Unified Intelligent WATER
Project leader: *Indra (Spain)*

Only 2.5% of the world's water is fresh water. In recent decades, the human population has increased by a factor of 3, but at the same time water demand has increased by a factor of 6. To solve the water sustainability problem, ICT technologies are needed. The WATER-M project combines real-time monitoring and operational control, service-oriented approaches and event driven mechanisms to enable the creation of a unified water business model.

BENEFIT – 13031
Better Effectiveness aNd EFficiency by measuring and modelling of Interventional Therapy
Project leader: *Philips (Netherlands)*

Ageing is driving up the costs of healthcare. BENEFIT builds upon the results of previous advanced imaging and minimally invasive interventional treatment projects, whose degree of maturity enables a subsequent step to be taken to quantify data from multiple sources and apply them in models and workflow support before, during and at the end of an intervention. BENEFIT addresses improvements in areas like image-guided intervention and treatment (IGIT) and Medical data IT.

CareWare – 13034
Electronic Wearable Sport and Health Solutions
Project Leader: *EOLANE- Les Ulis (France)*

In the sports and health domain, the advanced electronic textiles, smart sensor solutions, real time platforms, data visualisation or data transferring solutions are rarely integrated in a real, interoperable, innovative, user-driven, go-to-market solution. The CareWare project aims to develop and leverage novel unobtrusive cyber physical systems for monitoring and advancing personal health and wellbeing so that personalised, simple-to-use and technologically advanced solutions can combine real-time data from various sources and advanced wearable smart sensor technologies.

APPS – 13035
Advancing Plug & Play Smart Surveillance
Project Leader: *Aselsan (Turkey)*

Future maritime surveillance systems will exploit the benefits of different sensor modalities, integrate high-quality (HD and 3D video), multi-sensory data inputs from multiple viewpoints, exchange multi-streamed data between subsystems and take plug & play action, placing unprecedented demands on networks for high-capacity, low-latency, and low-loss communication paths. The APPS project will contribute to this transition by advancing the state-of-the-art in surveillance systems in three key areas: plug & play, sensor processing and intelligent decision-making, and robust communication.

IDEaliSM – 13040
Integrated & Distributed Engineering Services framework for MDO
Project Leader: *KE Works (Netherlands)*

High-tech transport manufacturing industries like automotive and aerospace compete in a fierce environment, so Europe needs to be inventive, innovative AND operationally excellent, combining knowledge with fast, robust and low-cost product development and operationally excellent manufacturing. IDEaliSM aims to drastically improve the time-to-market and development cost of high-tech structures and systems by delivering a new distributed, flexible and service-oriented development framework for multidisciplinary design and optimisation that is capable of integrating people, process and technology.

MOOC TAB – 13043
Massive Open Online Course TABlet
Project Leader: *NXP Semiconductors (France)*

The rapid emergence of MOOCs (Massive Open Online Courses) is expected to change the structure of the higher and corporate education. Massive deployment of the tablet pinpoints the need for tablet fleet management and content management protection. MOOC TAB aims to create a tablet-based platform with data stored on a local secured cloud, tablets with an intuitive interface and a secured connection, and an open platform allowing the retrospective addition of other use cases.

InCloudInG – 13047
Inter-cloud identity governance
Project Leader: *Evidian (France)*

Cloud adoption is a key business necessity for cloud service providers. InCloudInG will provide an innovative, modular and consistent eco-system of software modules to enable the robust management of identities and access to applications running in an extended environment of multiple cloud providers. InCloudInG will implement crucial identity mechanisms at every level of the Software-as-a-Service value chain to securely and efficiently govern the identities and permissions of end-users in the extended cloud environments of Software-as-a-Service.

Community Talk with:
Franz-Josef Stewing

In this first of a new series of interviews, Community Talk (formerly *Who is Who*) invites a prominent member of the ITEA community to speak about his or her ITEA experience and then invite someone else from the ITEA community to be interviewed in the next issue. Franz-Josef Stewing, Director of Product Development and Training at Materna GmbH Professional Services and aficionado of The Clash, Joy Division and The Smiths, among others, kicks off Community Talk.

"It's a real privilege for me to be the first in this series of talks and I hope I can give it a good start. First, a bit about my background. I gained my MSc degree in computer science from the Technical University of Dortmund about twenty-five years ago after which I worked at the university for a short time. Then I moved to the research C-LAB of Siemens in Paderborn before joining my current employer about ten years later where I have been working in the field of professional services in different roles. In my current role as Director of Product Development and Training, you could say that I have journeyed from research to business, and having worked at the intersection of research and development, I am in a position where I can see the whole trajectory, from concept to product. Which is actually the trajectory of ITEA projects.

"I first became involved in ITEA in 1998 when Siemens/C-LAB management asked me to collaborate in ITEA during its launch from 1998 onwards. During that pioneering period of ITEA the members of all the boards and committees of ITEA had good personal contacts with each other (among others I have been part of the inaugural composition of both the ITEA Board Support Group and Steering Committee), in particular the core team that coordinated the writing of the ITEA Rainbow Book and the SOFTEC project team that coordinated the production of the first ITEA roadmap on Software-intensive Systems. So I guess this must make me a real ITEA 'veteran'. Looking back, we (the core team) came up with and proposed the format of the PO days that are still being used to this day. I also recall the first, somewhat chaotic ITEA Symposium in Toulouse, in

proposal planning meeting there. After SIRENA there were a few follow-up projects (OSAmI, EASI-CLOUDS, BaaS) that continued the research partnerships, finishing and refining the results. For the today's BaaS project, I am the coordinator. It seems that we – ITEA and myself – are destined to be 'stuck' together ...”

“Over the years ITEA has changed and these changes have affected the ITEA community in various ways. Certainly, ITEA has become increasingly professional and mature, but fortunately it has kept its family spirit, pragmatism and non-bureaucratic manner and, very importantly, its industry driven (bottom-up) approach. As for my role, I have also changed with the times. I am no longer part of the ITEA core of the early days. Now I am just a 'normal' member in ITEA projects, fulfilling a kind of grey eminence advisory role for the 'younger' researchers in collaborative R&D projects. Which, I suppose, is in keeping with my career path – from R&D manager to commercial software product development manager leaning on a firm R&D pillar. And when I look at all these new projects, I still see the pragmatic, bottom-up approach that is geared to industry and market proximity as far as possible along with the honesty, spirit and willingness of project partners to really deliver. This really is significant – they are not about circumventing the real challenges and running off with the funding. They want to make the results work, get them into the market and benefit industry and society. And in that way, they are keen to seize the high ground, investigating the options to be real forerunners in innovation and to make this innovation really happen. They are passionate about achieving a strategic advantage and a future prominent role in commercialising these innovation options.”

“And over the coming decade I think ITEA projects will be vital to helping countries in the EUREKA network achieve their targets. I see them as an important complement to national and European Commission R&D programmes, bridging national and trans-European interests at the intersection of basic research and applied R&D. In a context of 'happiness', something that means to me in terms of the ITEA community: maintaining a professional attitude in running and monitoring our projects and jointly moving forward to achieve their intended objectives in a real collaborative manner but without any political tensions that cause unnecessary friction among the partners. In other words, enjoy what you are doing and don't take it so seriously, that takes the fun out of it. As for society, we should be proposing IT solutions for societal issues, like the Intelligent Ergometer prototyped in OSAmI to provide an option for the IT based rehabilitation of cardiac disease patients, allowing them to convalesce in their homes instead of having to undergo uncomfortable and costly longer stays in clinics. That is happiness.”

“If I had to say what all the results of ITEA projects or my participation in ITEA have done in terms of my own personal life, I would say that they have given me the opportunity to keep in touch with the research community, to establish and maintain lasting (international) friendships and the privilege to collaborate with open-minded colleagues on challenging, interesting and industrial/societal relevant R&D subjects. These are the things that have made me happy. But, of course, we do not invest without aiming to get a return, so after some eight to ten years of my company's participation in ITEA projects, we are quite close to making some money on the results now. It may have naturally taken quite some time but the wait has been worth it in the end. And that puts a smile on our faces too.”

“And finally, the question of who to hand over this baton of honour for the next magazine. There are so many possibilities – veterans like myself, relative newcomers as I once was and someone with a bit of both. So, let me take that last option and invite Juhani Latvakoski of VTT to take the next leg.”

September 2000, in which I participated. Things have come a long way for the better since then. I was also twice a recipient of the ITEA Achievement Award for the SOFTEC and SIRENA projects, so I am certainly proud of this involvement, too, and its acknowledgement by the community.

“After I left Siemens, I continued my involvement with ITEA with the SIRENA project I just mentioned. It came about a little by accident and a little by design when I was invited to collaborate with former ITEA contacts (Bosch & Siemens/C-LAB) via the Technical University of Dortmund where the project manager of Bosch had worked and set up a corresponding project

End-user happiness

ITEA project results enhancing people's lives

Today, the energy and transportation industries face new challenges: to increase the safety, availability and operational performance of the systems that they operate while complying with ever more stringent safety and environmental regulations. A particular challenge for the electrical sector is to extend the lifetime of existing power plants, to increase the flexibility needed by the energy transition in Europe (more renewables on the grid) and to build new plants for the energy mix (nuclear, solar, wind...). These new challenges can only be met through new IT tools that cover the complete engineering lifecycle of such systems, from design to operation.

The aim of MODRIO is to extend existing tools based on open standards (Modelica & FMI) so that they can be efficiently used by engineering teams to improve the design and the operation of power plants using modelling, simulation and optimisation. Today these new tools make it possible to more frequently and more accurately assess during operation the internal state of large components in plants, such as the steam generators, for better and more affordable maintenance. Tomorrow, it will be possible to more efficiently perform complex safety and dependability studies that involve very large numbers of possible operating situations to be explored. Such studies can be qualitative like Failure Mode and Effect Analysis or quantitative in order to assess system failure probability. It will also be possible to more efficiently and more accurately track the origins of energy losses in plants. In the longer term, it will be possible to model the global energy system for a better understanding of the interactions between the different actors (producers and consumers) and the impact on the grid.

Such benefits can also be achieved in other sectors, for instance in a passenger car, where the on-board computers will be able to measure more phenomena from the same or even lower amount of sensors, by enriching the measurements with model information. This offers the prospect for the consumer to have enhanced performance for safety and efficiency, for instance with cheaper and better systems for collision avoidance, and reduced CO_2 emissions in urban traffic thanks to better engine control.

ITEA 2 project MODRIO

Calendar

10-11 March
CO-SUMMIT 2015
Berlin

Save
the
Date

ITEA Success Story:

MEDIATE

Boosting health on three fronts: patients, the healthcare system and the economy

MEDIATE can be seen as one of a cluster of ITEA healthcare projects, part of a roadmap that is an essential ingredient for ensuring that one does not just go from project to project without a clear overview of intended achievements but that each project feeds on the results of its predecessors, where appropriate, and takes them through to the next level. In turn, successors reap the benefits of this form of collaborative research within the framework of future ITEA 3 projects – the string of pearls.

Nexxis Operating Room

The economic burden of chronic disease – integration is key to the solution

Cardiovascular diseases alone are responsible for 42% of all deaths in the EU, for 21% of productivity losses and cost the EU economy €192 billion a year. By 2015 global healthcare spending is expected to have risen to 15% of world GDP. Healthcare has become a major and growing market; the diagnostic and interventional medical imaging market alone is worth almost €20 billion globally, and is growing steadily. The compound annual growth rate (CAGR) of the European market for 3D imaging is 14% (2004 to 2014), and the global

clinical decision support system (CDSS) market rose by over 180% from €159 million in 2006 to €289 million by 2012.

The significance of the market is reflected in the significance of the challenge that this latest 'pearl' of successful ITEA projects, MEDIATE, took up: to reduce costs and to improve the predictability of patient outcomes. The key lies in integrating medical imaging systems fully into surgical procedures and hospital workflow systems. As Herman Stegehuis, the project's leader, explains, "In MEDIATE we targeted three different application areas – cardiac, oncology

and orthopaedics – with the aim of making medical intervention more efficient by enabling the physician to see at a glance all the pre-operative and operative data on a single screen so that he can then concentrate on the patient rather than having to search through different information sources." The architecture that was developed can manage this integration, not only of the information but also of the robotics that is increasingly becoming a feature of surgery, thereby benefiting instantaneous interventional support by medical specialists to remote situations where not all the expertise is to hand. This move towards minimally invasive
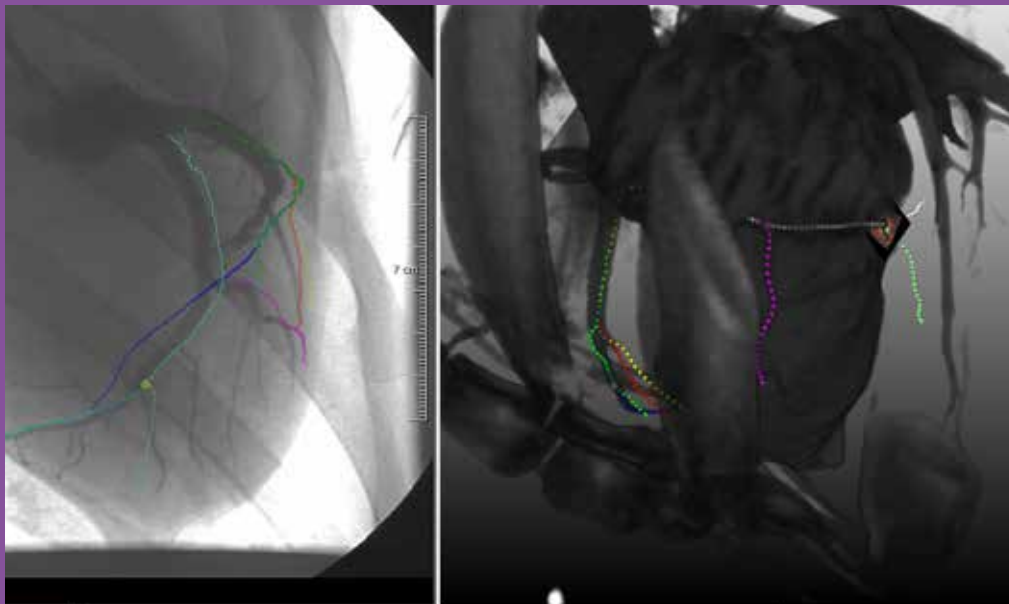
Integration of images from different sources (made before as well as during the treatment) on a single screen to support a cardiologist while treating an obstruction in a cardiac artery
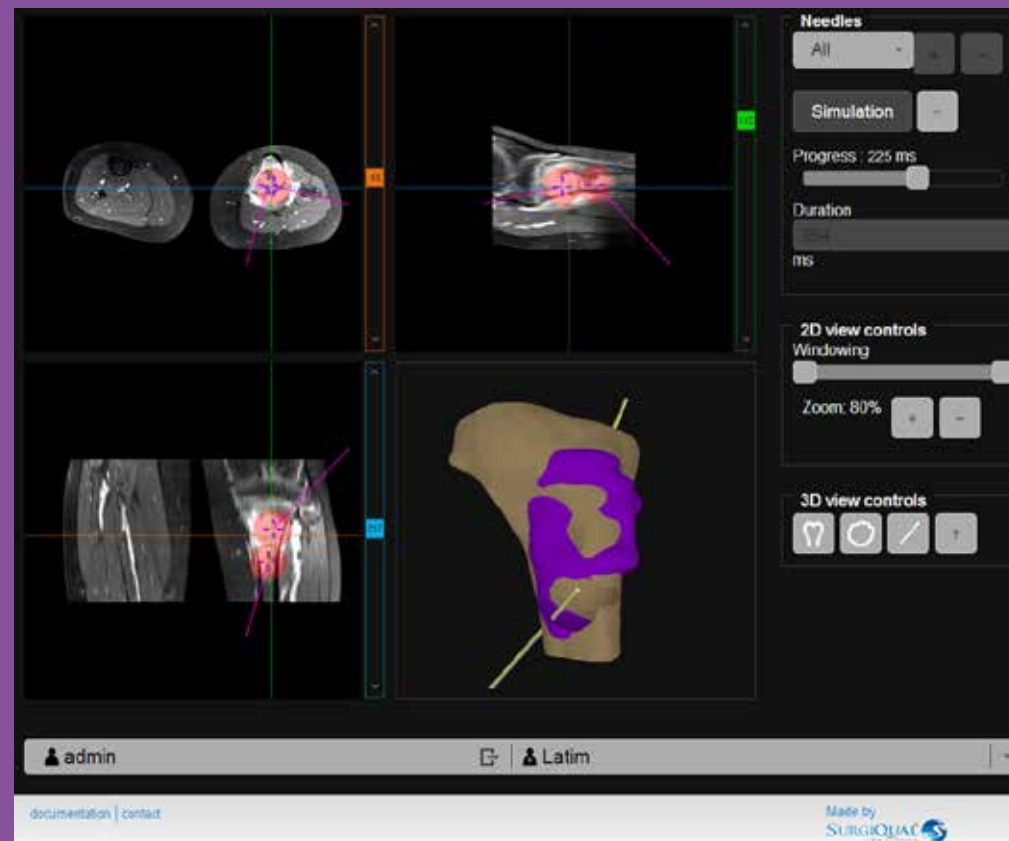
Web-based collaborative platform enabling remote support during patient-specific planning of a bone tumor treatment

surgical solutions based on medical imaging represents substantial gains not only for patients and healthcare provision, with more efficient care and shorter stays in hospital, but also for society in terms of the economic benefits of more manageable healthcare costs and fewer productivity losses.

Exploiting the results

Among the results already being exploited in a range of healthcare IT products are high-speed, high-resolution image-acquisition and processing technologies, multi-modality registration and motion compensation algorithms, decision-/navigation-support, image analysis and reconstruction software tools, user-interaction models, and enhanced surgical tools. Philips, the leading player in the MEDIATE consortium, is expected to release new features in 2014 on motion compensation and metal artefact correction as well as enter the Image Guided Intervention and Therapy solutions market which is about 10 times larger than the interventional imaging market alone. This strategy and these improvements are likely to add a significant sales volume over the next five years.

Another key consortium member, Barco, has used the results of the MEDIATE project to create its Nexxis platform, an IP-centric solution for video and image management and distribution in the next-generation digital operating theatre where traditionally, AV systems connect devices like endoscopy cameras, computers, scanners and surgical displays. Nexxis, on the other hand, uses a high bandwidth 10 Gbps IP network to integrate surgical equipment. This unique OR-over-IP approach ensures high-quality imaging and enables a smooth distribution of uncompressed medical video, graphics, audio and computer data throughout the OR with near-zero latency. This open system with its 'plug & play' enables medical equipment to be rolled into the operating theatre and be instantly connected. In March 2013, Barco announced that ten leading hospitals in Belgium and the Netherlands had signed a contract for the installation of Barco Nexxis, which will form a critical part of their new digital operating theatre infrastructure. Today,

MEDIATE

Belgium
Barco N.V.
iMinds

France
CEA LIST
Cedrat Technologies
Digisens
EndoControl
HAPTION
Institut Mines-Télécom Bretagne
Philips Medisys
SurgiQual Institute
Therenva
Université de Rennes 1 - LTSI

The Netherlands
Demcon
Erasmus MC
Leiden University Medical Center
Nucletron Operations BV
Philips Healthcare
Philips Research
Prodrive
Technolution
University of Amsterdam Academic Medical Center
Utrecht University Medical Center (UMC)

Spain
Alma IT Systems
Atos SE
Institute of Applied Computing with Community Code (IAC3)
University of Girona
Vicomtech Foundation

Person-years
347

Project leader
Herman Stegehuis, Philips Healthcare

Project start and end date
September 2010 – December 2013

Website
http://mediate-project.com

already over 250 operating theatres have installed Nexxis within Europe.

Another beneficiary of the MEDIATE project is SurgiQual Institute (SQI), which designed and developed an innovative clinical application whereby radio frequencies are used to suppress tumours. SQI also leveraged this work into a more general software environment including a web collaborative platform particularly adapted for planning patient-specific medical interventions. SQI has also already started developing two other applications in orthopaedics, one of them recently CE marked by an SQI customer. Beside medical interventions, a collaborative web platform is relevant as a central tool to run Digital Pathology Systems, secure outpatient/home care or optimise medical resources.

Current SQI core development targets the optimisation of radiotherapy equipment. The resulting software will enter clinical evaluation by June 2014 at Centre Oscar Lambret, a leading European oncology centre. Thanks to the MEDIATE project, SQI has acquired a strong asset that is highly promising both in the image-guided intervention field and larger clinical markets where quality of communication matters.

A bright future of opportunity

The healthcare challenges being faced by society and taken up in MEDIATE have created opportunities such as those described above, but they are not restricted only to the healthcare imaging market. As Herman Stegehuis points out, "You see that some of the techniques we are developing in MEDIATE can be used in other domains like traffic and microscopy. And then again, we are seeing a mechatronics company becoming involved in the healthcare field, using its specific expertise to develop a robotics application for precise needle placement. So, there is plenty of opportunity for exploitation from other domains and in other domains."

More information
www.mediate-project.com

Kicking off ITEA 3

Series of events puts ITEA 3 and its first Call in the spotlight

20 January 2014
Amsterdam, The Netherlands

Summit France - The Netherlands Smart Cities, Urban Challenges

Opportunities for cooperation in Europe

On 20 January, the French President François Hollande visited Amsterdam. He was accompanied by a large delegation of officials, scientists and business representatives, establishing contacts with their Dutch colleagues during a seminar and various round tables. ITEA Chairman Rudolf Haggenmüller presented the possibilities for Smart City projects in ITEA. During the visit, a Memorandum of Understanding was signed between France and the Netherlands, by Vice-Présidente of Grand Lyon, Karine Dognin-Sauze, and Vice Mayor of Amsterdam, Carolien Gehrels. The Memorandum includes agreements for further cooperation between the two countries, as well as between smart cities in both countries.

13-14 February 2014
Mexico

Technology Platform General Assembly

On 13 and 14 February, Rudolf Haggenmüller visited Mexico City to take part in the Steering Board Assembly of the Mexico Technology Platform (MTP) and the kick-off of CONECTA 2020 including MTP partners from Latin America and Europe. He was invited to present ITEA to the MTP General Assembly. The presentation focused on the benefits of participating in ITEA, our Living Roadmap, success stories and the 2014 calendar.

During these days, a cooperation initiative was agreed between ITEA and MTP to promote EUREKA and ITEA in Mexico.

26 February 2014
Nuremberg, Germany

ITEA 3 Launch Event Germany

On 26 February 2014, the ITEA 3 launch event in Germany took place at the „embedded world – Exhibition & Conference" in Nuremberg. The event was hosted by the Federal Ministry of Education and Research (BMBF) and the ITEA Office.

Erasmus Landvogt, Head of Unit 514: IT-Systems, and Rudolf Haggenmüller, ITEA Chairman, welcomed the participants of the launch event. The importance of information technologies, especially software-intensive systems, as drivers for innovation in Europe was underlined and ITEA 3 was referred to as an excellent example for facilitating and enhancing European research collaborations in this field.

Rudolf Haggenmüller also highlighted the value of software innovation and development to building a stronger European industry and a more sustainable society - ITEA 3 will be radically different from earlier ICT research and innovation programmes.

Invited speakers from the ITEA 2 projects MODELISAR, VERDE, and openETCS presented their experience in cooperating with European partners in ITEA projects. The participants also gained knowledge about the strategic alignment of research funding in Germany as well as about the rules and criteria for ITEA 3 project organisation and funding.

The kick-off event was accompanied by a poster session of numerous completed and ongoing ITEA 2 projects. Finally, the event ended with a networking session where participants took the opportunity to exchange experiences and to discuss ITEA 3 project ideas and consortia.

In close cooperation with the Public Authorities, ITEA has organised several ITEA 3 kick-off events to give attendees the opportunity to learn about ITEA 3, the experiences of ITEA project partners and the possibilities of funding in the different ITEA countries. These events also allow ample room for networking and pre-brokerage discussions towards the opening of the first Call in September. In addition to the ITEA 3 kick-off events, ITEA also participates in several external events reflecting its ambition to initiate a more global approach to research and innovation.

26 March 2014
Helsinki, Finland

DIGILE - Mega Sprint Review Day

On 26 March, the Finnish ITEA 3 Kick-off event was held at the DIGILE Mega Sprint Review Day, in the Telakka Event Centre in Helsinki. Some 300 participants from Finnish organisations attended the enter.
Together with several Tekes advisors, ITEA representatives were present to answer all questions concerning the ITEA 3 programme and to tell more about the Finnish funding possibilities.

ITEA Chairman Rudolf Haggenmüller emphasised the importance of international collaboration in his presentation about ITEA 3 - Seizing the high ground in a time of change. In addition, the ITEA Success Story SUS - Smart Urban Spaces - was presented by Kristiina Ilkka from WhileOnTheMove Ltd. She explained the benefits and the results of their participation in the ITEA project SUS.

23 April 2014
Vienna, Austria

ITEA 3 Kick-off Austria

On 23 April, the ITEA 3 Kick-off Austria took place at the 'Haus der Forschung' in Vienna, organised by the Austrian Research Promotion Agency FFG, in collaboration with ITEA, attracting about 35 Austrian participants. Andrea Höglinger, Head of European and International Programmes at FFG, highlighted the importance of EUREKA Clusters as industry-driven initiatives executing projects with high commercial and innovation impact, especially convenient for Austrian companies. ITEA Chairman Rudolf Haggenmüller emphasised the importance of the software industry in Europe and invited Austrians to participate in ITEA 3. Andreas Eckel from TTTech Computertechnik presented the results of the ITEA 2 Project SAFE and its importance for TTTech. Finally, there was the opportunity to talk to the different Cluster representatives about project ideas and possibilities to present them at forthcoming PO Days as well as to representatives of the FFG about the funding procedures.

28-30 April 2014
Busan, South Korea

EUREKA/H2020 Korea Summit 2014

From 28-30 April, the EUREKA/H2020 Ko-Summit 2014 (www.kosummit.org) took place in the Park Hyatt Hotel in Busan, South Korea. The event was co-hosted by ETRI, PKNU and UNIST. Its theme 'How to Collaborate with EU' included the introduction, the presentation of ETRI's successful experiences with and the promotion of proactive partnerships in the R&D programmes of EUREKA & H2020. The three-day event was opened by ETRI's President, Dr. Heung-Nam Kim. ITEA was represented by Chairman Rudolf Haggenmüller whose keynote speech 'ITEA 3: Seizing the high ground in a time of change' was well received and evoked concrete discussions about how to participate in ITEA and what the forthcoming PO Days in Amsterdam could mean for Korean participants. Furthermore, ITEA project presentations of RECONSURVE, CAP, MANY, EASI-CLOUDS and ViSCa strongly showed how South Korea already successfully partakes in ITEA projects and the ITEA community.

15, 22 and 29 May 2014
Izmir, Ankara and Istanbul, Turkey

ITEA 3 Kick-off events Turkey

In May, the Scientific and Technological Research Council Of Turkey (TÜBITAK) and the ITEA Office organise three ITEA 3 Kick-off events in Turkey:
- 15 May in Izmir
- 22 May in Ankara
- 29 May in Istanbul
During these events the results of ITEA 2 will be presented and participants will gain insight into the successor programme ITEA 3. They can look forward to exciting presentations and networking opportunities towards new ITEA 3 project ideas and consortia.
Two days before the Izmir event, already 139 participants registered for Izmir, 63 for Ankara and 77 for Instanbul. These numbers clearly show the strong interest of Turkey in ITEA, that was also clearly visible during ITEA 2 Call 8. Registrations for Ankara and Istanbul are still open and free of charge: https://itea3.org/itea3-kick-off-event-turkey/index.html

PREDYKOT

Intelligent security and smart access control for online networks

With 'the cloud' increasingly hosting more and more computing tasks and data, online security, authorisation and identification have become vital, especially in markets where security is crucial, such as banking, cloud computing, mission-critical systems, network access and professional mobile radio systems. This growing dependence on online access is coupled with variety and sophistication in the threats that endanger that access. PREDYKOT set out to radically rethink approaches to security to enable organisations to develop security strategies and software to respond dynamically to organisational changes and reconfigure themselves to adapt to new conditions, thereby introducing intelligence into security governance and closing the security policy loop.

Smart reasoning

This ITEA 2 project shifted the focus of the management of the security policy from automation to a more intelligence-based approach, using critical intelligence to constantly update the security policy and consequently further improve business processes. The intelligent mechanisms developed in the project ensure that security policy not only becomes and stays efficient but also incorporates contextual information to enable the policy to be dynamically refined on a continuous basis. The new policy and reasoning languages developed by PREDYKOT combined the best of different policy-specification languages, events from management policies and authority from security policies on the basis of existing standards such as the extensible access control mark-up language, XACML, thereby enabling the specification and interpretation of security policy to be simplified. Tools were used to analyse the security policies specified by this language and to detect, for example, possible conflicts or inconsistencies in the policy specification.

A suite of modules

The software suite of models PREDYKOT created will dynamically improve security policy and keep it on track, using:
- reasoning engines on user activities, policy changes and contextual information;
- smart nodes as actuators or sensors for the information system;
- interfaces with security-information and event-management systems;
- fusion of distributed data and data management;
- workflow and security portal for feedback on the policy; and
- steering dashboard.

In smart nodes, for example, a semantic approach enables intelligent agents to exploit technologies so that the nodes can sense their environment and share knowledge, providing adaptive mechanisms to adjust the policy as the world changes and as new information becomes available. Anticipating the massive deployment of smart nodes in environments like personal mobile devices, PREDYKOT developed smart nodes that are able to calculate metrics, adapt policies and provide in-depth accurate information to specialised reasoning engines.

New product for security intelligence market

The diversification of and continuous changes in digital risks encountered by any organisation make security policy management an increasingly complex task. The highly innovative complete and coherent ecosystem of security-policy modules along with an application methodology developed in the PREDYKOT project can be considered a brand new product for the security intelligence market: a unique eco-system of interoperable, exchangeable modules. This software suite will continuously adapt security policies to changes in the risks inherent in administration, user activities or context, reacting to reports to modify the policy in real-time. In addition, the methodology guidelines – ranging from policy design methodology to the everyday steering of the policy using metrics for governance, risk management and compliance – will help deploy the PREDYKOT ecosystem in a realistic and pragmatic manner.

Evaluating and extending security management standards

The project partners used case studies to evaluate existing security management standards, or propose extensions to those standards, in the domains of semantic representation of a policy, security metrics, policy deployment methodology such as ISO 27001 or EBIOS, and reasoning languages. PREDYKOT also worked in close cooperation with the ITEA 2 EASI-CLOUDS project, which is developing a new cloud-computing infrastructure based on European and open standards, using the EASI-CLOUDS environment to test a number of key security policy capabilities, and thus prove the effectiveness of its approach. Indeed, other newer ITEA projects are already using some of the results of the PREDYKOT project: ADAX (contextual reasoning), Web of Objects (reasoning engine).

The project managed to book progress in the area of standardisation where collaboration took place with several ISO/IEC standardisation bodies. For example, the Finnish consortium partners worked with ISO/IEC 27000 series and IEC standards through FISMA and SESKO, and contributed to the revision of the ISO 27000 series standards while Thales presented the PREDYKOT principles to the French Standardisation Office for the standardisation of aeronautics and space along with proposed improvements to OASIS for the XACML 3 standard. Further to this, collaboration occurred on the editing of manuals relating to cyber-security of industrial systems at ANSSI and Cassidian averaged one presentation per week related to PREDYKOT technologies to customers in response to requests from customers to take into account reasoning engines.

There were three demonstrations: Professional Mobile Radio (PMR), Smart Grid, Identity and Access Management (IAM). The PMR demonstrator concerned malware through the USB key and was illustrated via virtual machines. The Smart Grid demonstrator focused on video and access rights policy including single sign-in on multiple devices and the IAM demonstrator explored three banking use cases in a running demo.

Real-life deployment of PREDYKOT results was made possible thanks to standards and abstraction layers, e.g. common representation of policies (XACML v3) and scalability was provided by the data fusion engine while adaptable workflow allowed a mix of automatic and manual reasoning. The reasoning rules have now been fully implemented and can handle policy, event conflicts and the like.

Demand-driven exploitation

On the exploitation front, there has been reported strong demand from customers and the consortium partners lost no time in responding. In early 2015, Evidian plans to release a new option of Access Intelligence in the next version of its Identity and Access Management product. This same year, Cassidian expects to provide a full decision-support solution in the Security Management area with a call for tenders in the Middle East and requests in Sweden, France and the Netherlands. Gemalto also anticipates the completion of technologies for Trusted Service Manager products in 2015. Thales is convinced that the developments generated in the PREDYKOT project will be beneficial to crisis management solutions, cloud IAM solutions and XACML developments (optimisation, cloud) while a commercial alliance between ZIV and Nextel will focus on making smart grid operation cheaper, targeting international markets (Mexico, US). SMEs have also benefited from the developments and results of the project as they look to enhance their product portfolios.

By improved compliance and security, and fostering ethics through compliance, the PREDYKOT project has responded to a real industrial and societal need, one that will only become increasingly critical as all kinds of markets, from banking to networks, are faced with a growing dependence on online access and all the concurrent dangers this poses. By creating a unique eco-system of interoperable, exchangeable modules, organisations are able to develop security strategies and software that are able to respond intelligently and dynamically, adapting to new conditions, and so benefit from intelligent security and smart access control for online networks.

More information:
www.itea2-predykot.org

INNOVATION REPORT   09025 SPY   Eric Munier, Cassidian, France

SPY

Automated, intelligent surveillance and rescue framework adapted to the mobile environment

Situational awareness is critical for law enforcement in complex, highly dynamic environments. Richer media resources can equip national and local authorities – particularly the police and fire brigades – with the kind of trustworthy, reliable information to help them in their day-to-day tasks. A new generation of intelligent surveillance – the automated wide-area system – is set to significantly improve the way that control rooms share information and supply it to operators in the field. To facilitate smart situational awareness requires new multi-camera surveillance techniques and data-integration methods as well as timely communication of the information together with suitable mobile and multi-sensor platforms. The ITEA 2 project SPY (Surveillance imProved sYstem) set out to address this security and safety challenge by creating an automated, intelligent surveillance and rescue framework adapted to the mobile environment.

Embedded intelligent solutions
The new framework developed by SPY is adapted to the mobile environment that requires optimised transmission and distributed intelligence. Key to the mobile aspect was the definition of embedded intelligent solutions to minimise the amount of information to be transmitted over the wireless networks, offering discrimination in field services depending on the detected situation – such as stolen objects, abnormal behaviour, suspicious event tracking and identification. SPY addressed these concerns by adapting and extending state-of-the-art algorithms already existing on personal computers to mobile and unpredictable contexts. The addition of a rules engine and an ontology to these algorithms enabled the creation of a standalone software core able to detect, understand and act during events. In addition, SPY defined and implemented a new protocol to ensure integrity, adaptive compression and encapsulation of metadata to provide the trusted and interoperable wireless media required in such environments. A secondary objective of the project was to define a new adaptive interaction solution to provide users with a comprehensive and intuitive picture of the incident adapted to their environment.

Common surveillance framework
The development of a common surveillance framework adapted to mobile environments must use advanced video-analysis techniques designed for mobile and unpredictable situations. While context sources were intentionally restricted to video sensors embedded in a vehicle, the SPY framework allows extension to others kinds of sensors. The use of advanced adaptive-coding, compression, error-resilience and error-concealment techniques improved transmission and saved on bandwidth over wireless networks. Distributed intelligence and decision-making capabilities, including data fusion, analysis and ranking of alarms were also important developments in the course of the project and video/image transmission security was enhanced through a combination of authentication, integrity and encryption mechanisms.

Among the major innovations generated within this project we can emphasise are: the way in which different technologies have been integrated to produce a full surveillance system, the event detection algorithms, adaptive video coding that provides optimum bandwidth use and smart mobile cameras. Beyond these innovative features in fields commonly associated with video surveillance, SPY also brings a technique that is a true first in this domain: the watermarking technologies adapted for mobile surveillance purposes. Compressed-domain watermarking is essential to being able to ensure video stream certification while copin g with real-time and reduced complexity requirements. SPY managed to specify the first hybrid watermarking-compression authentication scheme and exploited these schemes to design and deploy the first on-the-fly MPEG-4 AVC / H.264 authentication system.

In terms of standardisation, SPY had to jointly deal with technical domains in which no or few standards exist and others in which too many different standards co-exist. Hence, in-depth knowledge on a large variety of standardisation approaches was vital at all stages and levels of the project. Ultimately, SPY was responsible for three new contributions to ISO MPEG standards (collaborative BiFS, MPEG user description, compact descriptors for video search) and also helped to bridge existing standards (MPEG and W3C-HTML5).

Results tested by end users

This new framework improved the use of wireless infrastructures and mobile sensors to help professional end-users in the field as well as the possibility to exploit existing applications and advanced customised algorithms to provide the most comprehensive aggregated picture and automated decision support for faster and more effective monitoring, intervention and control of unpredictable situations. A central feature of SPY was the involvement of real end-users to demonstrate this mobile wireless surveillance solution in an urban environment. French and Turkish police and cities tested an integrated smart-camera – software prototype, embedded on a vehicle (e.g. a police car) and featuring:

- advanced video analysis, such as, object recognition, movement recognition and understanding;
- new certification techniques that enable surveillance information to be used for evidence;
- advanced adaptive video-coding, error-resilience, error-concealment and transport techniques;
- versatile and virtually error-free video stream transfer to the control room, using either non real-time video streaming or a reliable transmission method such as file transfer;
- video transmission optimisation over Worldwide Interoperability for Microwave Access (WiMAX), long-term evolution (LTE) and other wireless IP networks;
- the incorporation in the vehicle of abnormal-situation detection in mobile and

unpredictable contexts such as aggression, fire and crowd formation, something that can also be used to trigger alarms or live streaming to save network bandwidth when nothing important is happening;
- remote pan/tilt/zoom control for mobile cameras and to trigger and program specific behaviour or events – enabling users in the vehicle or control room to have full access to all camera data; and

- provision of a relevant operational picture to users by offering an adapted man-machine interface in the mobile environment with rich and intuitive display at control-room level thanks to a smart integration with the Supervisory Control and Data Acquisition (SCADA) system.

Secure and safe environment

The results of the project are already evident in the creation of one Austrian spin-off company to exploit the results and the submission by consortium member Aselsan of three international patent applications and one national patent application. Moreover, a spin-off partially exploiting the SPY results is currently under creation in the Institut Mines-Télécom ecosystem. An exploitation plan was presented for the key industrial partners and two of these, Cassidian and Aselsan, are already in discussion with potential customers.

With SPY systems becoming mandatory for deploying on-the-move video solutions using

wireless communication in the future, SPY is among the key components for the new CASSIDIAN LTE mobile broadband communication for the security forces, for example, which has already been tested by the French police and army (world's first operational demonstration in the 400 MHz frequency band) as well as the police in Spain, Mexico, Kuwait and Saudi Arabia, with tests in Singapore being planned. EOLANE, a French consortium partner whose market is intelligent cameras and video surveillance for public transport, is exploiting the need for passenger security and driver assistance among bus, tram and metro services, such as the RATP and SNCF. ASELSAN is already in the process of deploying its SONEC cameras as part of border security contracts totaling more than $120 million.

The advances in surveillance capabilities demonstrated by SPY illustrate how end-users can gain global situation awareness without compromising on detail. Due to their inner scalability and interoperability, the concepts developed within the project could also apply to other markets such as traffic or industrial safety management. In such a case, the surveillance ontology should be enriched with data and metadata models to identify new situational representation and new metadata protocols.

This project, with its watermarking for surveillance and other innovative technologies, demonstrates how European industry is not only a pioneer as an 'inventor' of cutting-edge solutions but also a main player able to seize the high ground when it comes to valorising the results. The benefits from such advances will be felt in terms of industry and employment as well as in a wider societal context where such mobile wireless surveillance solutions will contribute to create a more secure and safe environment for citizens.

More information:
www.itea2-spy.org

Fire up a project proposal in ITEA 3: opening of the first Call!

ITEA PO Days 2014 – 23-24 September, Amsterdam

On 23 September, the first ITEA 3 Call for project proposals will open in conjunction with the ITEA Project Outline (PO) Preparation Days in Amsterdam on 23 and 24 September. This event will be a stepping stone for you to start preparing a PO, to learn and discuss about new project ideas, meet and partner up with consortium members and find out more about the Call details.

Once a year, ITEA offers the opportunity to submit project proposals that fit in the domain of Software-intensive Systems and Services. In a two-stage procedure, the quality of the project proposal is evaluated and improved, finally leading to a selection of high-quality project proposals that receive the official ITEA label (see highlighted boxes for more details). The Public Authorities are fully involved in the evaluation and labelling of projects. After labelling, partners can apply for funding through their national Public Authorities. The ITEA label is endorsed by all EUREKA Member Countries.

PO Days 2014 – an ITEA 3 first!

At the start of ITEA 3, a noticeable difference from ITEA 2 is the restructured annual Call calendar, meaning PO Days 2014 in September followed by the expected labelling of projects already in March the following year. This all is implemented together with the national Public Authorities to be able to shorten the period from project idea to project start and thereby support ITEA consortia in streamlining their project start and progress.

The PO Days 2014 will have a tried and tested programme enabling you to:

- Prepare your project ideas upfront in the online project idea tool and, if desired, already share them with other attendees;
- Present your idea in a poster session and during parallel project idea pitch sessions;
- Discuss project ideas in workgroup sessions; and
- Contact other interested parties/potential partners from all over Europe and beyond.

Short plenary sessions will also give you general information about ITEA and the Call process. These sessions will be as concise as possible to enable you to focus on the actual project idea(s) and discussions. Of course, the ITEA Office team will be there to answer all questions that you might have during both days.

If you plan to participate in this ITEA 3 Call 1 and the PO Days 2014, now is the time to start shaping your project idea(s) and project consortium and exploring local funding possibilities. Save the date (23-24 September) and please make sure you check our website (https://itea3.org) regularly as the event registration will open in June.

Consortia & project characteristics

Take account of the following when contemplating a project idea:

- Project consortia need to have at least two different partners from two different countries, one of which must be a EUREKA Member Country and another one, either a EUREKA Member Country or a EUREKA Associated Country.
- Project consortia can be composed of representatives from large industry, small and medium-sized enterprises (SMEs), research institutes, universities and user organisations (profit or non-profit).
- ITEA projects are industry driven, technically innovative and business oriented.

Two-stage Call process

Each Call follows a two-stage procedure:

Producing a Project Outline (PO):
This PO gives a short overview of a project, mainly to describe the project goals, innovation, targeted business impact and consortium. Project Outlines that are positively evaluated are invited for the second stage.

Writing a Full Project Proposal (FPP):
This FPP describes the project plan and how the project will be executed and managed. Approved FPPs will receive the ITEA 3 label.

Big data: a new trend in the market

We are leaving traces everywhere in the digital world. Facebook alone accounts for around 3 giga traces per day. These traces represent the full knowledge of all our usage and can be interpreted as our desires. With the digital world becoming an increasingly central and vivid presence in our lives, these traces are of huge value in understanding society and, more specifically, customers by statistically identifying dynamicly new trends and potential dangers. But they can be also used at individual level to control one's usage or to offer the most suitable service one is seeking.

As any innovation, Big data is black and white. It can be used to control and influence customers. It can be also a tool to solve the huge societal challenges to creating a sustainable world as well as a tool for a more friendly 'digital world'. Regulation is there to allow us to choose the bright side of the moon.

The NSA syndrome makes everybody conscious of the fact that we are all concerned by our traces. A first question to ask is: to whom do they belong? A major trend in Europe is to say they belong to the user, when some digital leaders would prefer it can be used freely. This privacy rule is nevertheless a key question in allowing the seamless development of the digital world based on trust. European regulations are moving in this direction.

In the past, big data tended to be called business intelligence. The only difference now is the scale since we are speaking of terabyte traces and even more. There is no doubting the value of these traces but we are still being faced by looking for the proverbial needle in the haystack. And we are doing this by mathematical algorithms whereby a lot of research has to be invested to pick the maximum of value. Although the recommendation engines of commercial tools are already impressive, we must realise that we are still at the infancy stage. Imagine the scale when the connected objects are massively deployed; it is the whole of our lives that can be used to offer the best service for the customer. There is no application domain to which such a future does not relate. This is the strength of this technology. Uncontrolled it can lead to major changes in economic leadership and some kind of new intermediation in the value chain.

Open data is another trend to take into account as more and more institutions agree to share their data production for public benefit. The key value is in the cross-fertilisation of the data sources, which presents an even greater challenge to data science algorithms. Good news for employment: we need new talent in the shape of data scientists, which are already in scarce supply. Our universities are now creating new courses to this end.

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Francis Jutand - Scientific VP of Cap Digital

Cap Digital has supported the creation of a French big data platform, Teralab, dedicated to the research community (academic and industrial) to invent new algorithms for the interests of our industries. This platform will be used at European level in the ITEA 2 CAP project. We are confident it is a good step for Europe to keep its good position in this huge emerging market.

Linking Korea & Europe towards global innovation

Korea EUREKA Day 2014
26-28 May
Oslo, Norway

Organised jointly by the Korean Ministry of Trade, Industry and Energy and EUREKA, the Korea EUREKA Day 2014 will take place in Oslo, Norway on 26-28 May 2014. The Korea EUREKA Day plays a central role in promoting Korean-European R&D cooperation. The event will provide a platform for creating new business opportunities, sharing innovative ideas and knowledge as well as initiating new R&D collaborations.

This fifth edition of the event will be the occasion for European companies to meet their Korean counterparts in the following technological areas: ICT convergence, green technologies, maritime and offshore technologies and life science. ITEA Chairman Rudolf Haggenmüller will act as moderator of the thematic presentation on ICT Convergence.

For more information and registration:
www.eurekaday.kr

Norwegian chairmanship coming towards its end

Ministerial Conference, 17-19 June, Bergen, Norway

A new organisation strategy and the launch of the new Eurostars Programme are among the merits of the Norwegian chairmanship of the EUREKA Network, which will come to an end in June.

"Leading the effort to develop the new strategy platform has been an interesting task. We have focused on an inclusive work form so as to activate all participants in the network, and have structured our activities with a 'Nordic touch', including lots of brainstorming and group efforts. We are pleased that we will have completed the new strategy by the summer," says International Director at the Research Council of Norway Kristin Danielsen, who has been heading the Norwegian chairmanship team.

Platform for national research programmes

"The new strategy focuses on EUREKA as a platform for national research programmes seeking to collaborate internationally. EUREKA is opening its doors to the rest of the world as well. The organisation already has two associated member countries outside Europe: South Korea and Canada. South Africa will also be officially granted Associated Country Status at the final conference of the Norwegian chairmanship, which will be held in Bergen in June."

Launching the Eurostar 2 programme

"One of EUREKA's core tasks is to operate the Eurostars Programme, which is co-funded by the EU. Establishing Eurostars 2 has been a fascinating and complicated political process. During the Norwegian chairmanship, we have worked very systematically vis-à-vis the EU member states and the EU institutions. We are pleased to have managed to gain approval for the third country partnerships, and to have secured a good financial framework to operate the programme properly in the years to come," notes Ms Danielsen.

Source: www.eurekachair.no

ACQUEAU	2 June	Deadline Full Project Proposal Submission		www.acqueau.eu
CATRENE	23-24 June	Design Technology Conference	Grenoble	www.catrene.org
	4 September	Call 7 deadline Full Project Proposal Submission		
Celtic-Plus	25 June	Proposer's Day	Berlin	www.celticplus.eu
	15 October	Deadline Submission Autumn 2014 Call		
EURIPIDES²	5-6 June	Forum and Proposers' Day	Prague	www.euripides-eureka.eu

Colophon

An online version is available at www.itea3.org