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ITEA 3

Opening of ITEA 3 Call 1!

Focus on the Republic of South Korea

Identity and Access Management

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Editorial

I am writing this just a few days after the first ITEA 3 Project Outline (PO) Preparation Days, and they were great. In the Beurs van Berlage, we had a beautiful historic venue in the centre of Amsterdam. More than 270 participants from 20 different countries got together to build project consortia and to elaborate business-oriented project ideas. We saw many good project ideas and the participants evaluated the event again with 3.9 points on a scale of 1 to 5.

On the occasion of this first project Call in ITEA 3, we can see that all the important changes for ITEA 3 are in place now. The agile organisation has been realised with a professional quality management system certified under ISO 9001. We introduced the Living Roadmap as a supporting tool to our community and a baseline for innovations as well as adapted our project Call calendar together with the Public Authorities in order to reach the target of 10 months between Call opening and project start. Cooperation with other Clusters is very active with a strong visibility of ITEA in the EUREKA network and the forthcoming Co-summit with the ARTEMIS Industry Association in Berlin on 10 & 11 March 2015.

So now all the good ingredients are there, and we have to actually make a strong ITEA 3 programme happen, an ITEA 3 seizing the high grounds based on good projects with strong innovations, business impact, fast exploitation and, last but not least, happiness. This time I want to zoom in a bit more on the importance of ICT to realise the ITEA 3 ambitions.

After the successful launch of the redesigned public website www.itea3.org, the new community website has also been released. This is now directly accessible from the public website by a single log-in via MyITEA. Like the public website, the community website is now mobile-friendly by adapting automatically to the variety of screen formats. For the first ITEA 3 Call, the process flow for proposal submission has also been clarified with more online help and a checklist indicating the parts of the proposal that are still to be completed.

For the happiness of our community, the quality of the ITEA websites is crucial. Our public website attracts on average 200-300 visitors per day, with double the amount around our main events. Our community website attracts about 50-100 visitors per day with an average duration of about 5 minutes, which increases up to around 1000 visitors per day with an average duration of 15-20 minutes around submission deadlines.

Now back to this 19th issue of the ITEA Magazine: of course it contains an article on the PO Days, along with the usual wealth of strong articles on ITEA projects and the people who make them happen. We have a story on Korean participation, a story on successes achieved by Evidian, the community talk by Juhani Latvakoski, three project stories and a number of shorter items.

Enjoy the read!

Fopke Klok

While hardware is still the core of Korean industry, a shift is emerging towards a more software-focused industrial base, with its high added value and conducive effect on creating employment opportunities. Proof of the importance of the software sector is the fact that since 2013, the domestic software market has surpassed USD 10 billion in value, making Korea 17th in the world in terms of software market size. Analysis has shown that the continuous growth since 2009 will continue until 2016. The increase in demand for mobile, cloud, big data, cyber security-related software as well as its wide utilisation within e-government services, finance and manufacturing, is regarded as a key sector-growth contributor. With the advancement of the IT sector, positive side effects are being felt, such as increased transparency within the public sector and reduced bureaucracy.

The Republic of Korea

Period of transition, from hardware to software

"Research already plays a very important role in ICT," says Dr. Sang Keun Lee, National Project Coordinator / Director of the International Technology Cooperation Division of the Korea Institute for the Advancement of Technology (KIAT). "I am convinced it will continue doing so in the future. Not only are we in the process of transition from a hardware-based to a software-based industry but we are also witnessing their convergence. Electronics, medical appliances, bio technologies, automotive, display and shipbuilding sectors are all software-intensive and, as such, are entirely dependent on quality R&D."

Supporting the shift

The Korean government has developed and implemented an all-inclusive, multilayered support system targeting the software industry. There are several designated agencies (for example, the National IT Industry Promotion Agency) that focus their activities particularly on promoting and supporting the sector. There are also multiple support programmes, including a variety of especially designed graduate courses for universities, support for company employees and developers, etc. Attention is also paid to accelerating the growth within the sector by promoting SMEs through diverse forums and cooperative networks. Emphasis is put not only on the domestic side but internationally as well. Through initiatives such as 'Global start-up camp' and an overseas IT support centre, along with diverse measures targeting increased software export, quality globalisation and strengthening international cooperation, the Republic of Korea does all it can to get its software sector high in the world charts for the coming years as well. "However," Lee adds, "we still face a very significant challenge domestically – people working in this sector are comparatively low paid relative to the long working hours they usually spend at work. Because of this, the number of high-school graduates applying for software-related university majors is very low and decreasing."

There is a funding structure in place in the Republic of Korea for software research, such as a new growth fund whereby the Korean government provides research funding for KIAT to use as an investment resource (seed funding) for the commercialisation of promising future technologies. Another fund is dedicated to companies at different stages of development (start-ups, growing and global) and the World Best Software project is a funding channel that has aimed to foster global software companies since 2010. Funding is also provided through well-designed programmes offered by multiple organisations, such as the Small and Medium Business Administration, Small and Medium Business Corporation, etc.

KIAT is very active in supporting software-related projects but, as Lee points out, "we do not directly support the software industry since this is within the scope of Ministry of Science, ICT and Future Planning. In fact, ICT-related and ICT-industry convergence projects (like bio and ICT or electronics and ICT) account for the majority of the projects we support under EUREKA. We provide various workshops and manpower training sessions and, of course,

funding for those that pass our screening and evaluation process."

The EUREKA connection
"Since becoming a EUREKA Associate country," Lee explains, "we have set our funding procedures in accordance with those that all network members should adhere to. In that sense, EUREKA is very relevant, as I mentioned above, and the bigger part of the projects we have funded there are ICT-related."

KIAT's two primary goals are innovation support and convergence. "To achieve these, it is very important for us to be part of as many collaborative frameworks and initiatives as possible, especially the globally-oriented ones. Having said that, our active participation in ITEA 3 and other EUREKA Clusters, is of great importance as we gain access to huge networks of professionals and experts in various fields. This offers invaluable opportunities for know-how exchange and dialogue, best practice benchmarking and competitiveness enhancement." An example of the success of the participation with ITEA is shown in the ITEA 2 project RECONSURVE that received the Korea EUREKA Day Award in recognition of developing the most innovative and commercially viable EUREKA project in 2013. This year, two ITEA 2 projects CAP and EASI-CLOUDS even won this award. The projects are recognised for successfully engaging in transnational industrial R&D and furthering Korean-European collaboration.

European companies are interested in entering the Asian market because of the region's rapid growth over the last couple of years, its large population and the rather strong bargaining power of consumers there. Korea in particular has long been considered a primary test bed for many newly emerging technologies and services due to the sophistication of Korean consumers in terms of their purchasing choices. In addition, Korea's younger generation is among the most active of consumers, making them ripe to become early adapters of any new technology offered.

The importance of industrial SMEs in the Republic of Korea
Industrial SMEs in Korea are gradually increasing in importance. Lee: "In Korea, we have long witnessed the situation where large companies have been considered as the driving force of the economy, which currently results in them being responsible for about 60-70% of the GDP. However, the government is now trying to change that by providing active support to SMEs in order to boost their capacities and capabilities. One of the main reasons is that large companies do not make any meaningful contribution to job creation in the domestic market. In contrast, SMEs are responsible for 80% of the jobs offered and as such are perceived as very important drivers of the economy."

In addition to funding, KIAT provides R&D training programmes and numerous matchmaking and partner search opportunities through participation in global networks such as EUREKA and EEN. The benefits provided were further expanded this year after joining Eurostars 2, which targets R&D performing SMEs in particular.

Work in progress
"In terms of domestic improvements, we have to focus on a very serious issue we currently face," Lee states. "Out of the total R&D budget, only 3.5% is allocated to international cooperation activities. We definitely have to increase this percentage if we are to achieve better results. Also, we need to boost technology transfer activities and further focus our efforts on supporting post-R&D commercialisation. On an international level, we need to expand the scope of our partners, including countries located not only in Europe and the US, but also in Latin America and Asia. In addition, we will need to broaden the fields we collaborate in and focus on discovering a flagship project with multi-layer impact, and concentrate on collaboration within it."

ETRI

Since its foundation in 1976, ETRI, a global IT research institute, has been making its immense efforts to help Korea generate remarkable growth in the field of IT industry. ETRI makes Korea one of the top IT nations in the world by continuously developing global first and best technologies.

Building on its past success, ETRI continues to commit to R&D to maintain its place among the world's best research institutes. With its vision of being 'Smart & Green Technology Innovator', ETRI will continue to develop national strategy technologies, strive for the commercialisation of growth engine technologies and secure value creating intellectual property in creative and innovative ways for industrial development. ETRI, with its continuous efforts to develop creative and innovative technologies will lead the digital convergence era of the world IT Industry.

ETRI will help the humanity realise a 'Smart World' where people, technology and the environment are interconnected to create a more abundant, convenient and safe life. This is the future of ETRI.

Participation in ITEA
ETRI participated for the first time in ITEA 1 Call 7 and in total participate(d) in 6 ITEA projects with 36.4 person years:

- CAP ITEA 2 Call 7
- ViSCa ITEA 2 Call 7
- EASI-CLOUDS ITEA 2 Call 5
- MANY ITEA 2 Call 5
- Web of Objects ITEA 2 Call 5
- Passepartout ITEA 1 Call 7

In 2014, the ITEA 2 CAP and EASI-CLOUDS projects received the Korea EUREKA Day Award in recognition of developing the most innovative and commercially viable EUREKA project.

A shortcut between Europe and Asia?

European companies can gain significant benefits from cooperating with Asian companies, especially in Korea, not least because of the huge Asian market with up to 4.5 billion people, more than 60% of the world's population. With many Asian countries still in the early stage of their economic development, the capital and technologies of developed countries can help them succeed in the way that others, like Korea, have prospered.

In 2010, the relationship between Korea and the EU was upgraded to a 'Strategic Partnership' based on the 'Korea-EU Framework Agreement' and FTA. The EU is now Korea's second largest trading partner, with trade volume in 2013 up to USD 105.1 billion. The time has now come to broaden the current Korea-EU relationship on economy and trade by focusing on politics, culture, science and technology, and so on. There is, of course, still an emotional and a geographical distance between Korea and the EU but while Korea is located in the far east of Asia, between developed countries and developing countries, the country's industries have been developed within a generation and bear the characteristics of the developing and developed world. A peaceful co-existence of Christianity, Buddhism, Confucianism and other religions reveals a culture that is open and inclusive.

Closing the divide

"In order to take the trade-intensive relationship a step further, we need to recognise each other as cooperative partners in defining and solving the global agenda," says Dr. Heung-Nam Kim, President of the Korean Electronics and Telecommunications Research Institute (ETRI). "This will bring us closer both emotionally and mentally, and enable the geographical distance to be overcome. I'm convinced that EUREKA ITEA 3 is a shortcut to sharing R&D collaboration, broadening our mutual understanding and finally solving global issues together."

The relationship between ITEA and ETRI started in 2004, when ETRI participated in the ITEA 1 Call 7 Project Passepartout. "A few years later, in 2008," Dr. Kim recalls, "we attended the Project Call meeting in Amsterdam and presented two project ideas, PACE (Personalised Adaptive Crowdsourcing Environment) and PILM (Personalised Information Life-Cycle Management). We were the only Asian participant at the meeting to share our project ideas. Although we didn't succeeded in forming a project consortium, it did present a great opportunity to create an R&D network in Europe."

Innovation and diversity

These experiences enabled ETRI to play leading roles in forming the project consortia of MANY, EASI-CLOUD and CAP that started in 2011. Finally, in 2012, ETRI set up the ViSCa project initiated from its own idea. "The biggest benefits of ITEA project participation," Dr. Kim says, "are to understand more about Europe and to create an R&D network." While it is also normal in Korea for organisations of companies, universities and research institutes to cooperate in R&D projects, even with overseas organisations, the multilateral EUREKA ITEA 3 type of project was a rare case in the country's domestic R&D programme. "Innovation originates from diversity. Korean society should break its homogeneity to become a more innovative society with more diverse partners, to solve global problems. We have a great opportunity to interface European robustness and Korean agility to create mutually reciprocal collaborative relationships. I believe this is the main benefit of ITEA for us."

> "I'm convinced that EUREKA ITEA 3 is a shortcut to sharing R&D collaboration, broadening our mutual understanding and finally solving global issues together."
>
> *Dr. Heung-Nam Kim, President of ETRI*

PO Preparation Days 2014

The first ITEA 3 Call opened with promising project ideas!

Introduction by ITEA Vice-Chairman Philippe Letellier

"The last PO days in the Beurs van Berlage in Amsterdam were magic. Magic because of Amsterdam and because of Mr. Berlage, architect of the first stock exchange building in the world. But mainly magic because of this incredible transformation of the first 50 ideas into a set of pre-proposals that appear very promising in terms of both innovation and potential market impact. We welcomed our new friends from Canada who have already been able to join some proposals. Good luck!

Proposals have been created on Software Engineering, an important domain for ITEA for many years. Smart Cities and Smart Energy have generated a lot of proposals, like the past two or three years now but Security Risk & Crisis is definitively the key topic of this year. Some new domains like Retail and Industry are very important for this first Call of ITEA 3. Some key topics for ITEA such as Health & Wellbeing and Media were less prominent today but, in any case, this year's harvest can be announced as being of good quality. And, of course, there was Happiness again.

Thanks to everybody."

ITEA 3 Call 1 is open now!

The submission deadline for the Project Outlines is 31 October (17:00 CET).

Are you still looking for partners, wanting to join a proposal or have another question about the Call? Please contact the ITEA Office for further assistance (info@itea3.org) or reach out to the ITEA Community via our Linkedin Group or Twitter (@ITEA_3).

The Project Outline Preparation Days 2014, held in Amsterdam on 23 and 24 September, successfully kicked off the first ITEA 3 Call for projects. 271 participants from a record total of 20 different countries actively participated in the event's sessions and discussions. It was the first time that Canada took part; Carole Morneau of the Canadian National Research Council invited participants to engage in European-Canadian cooperation in ITEA.

In a historic venue, the Beurs van Berlage, the participants were cordially welcomed by Mike Timmermans, Manager for International Innovation and EUREKA National Project Coordinator of the Netherlands Enterprise Agency. The plenary session that followed introduced participants to ITEA and the structure of the event.

After this short plenary introduction, the participants took the lead! Around 50 project ideas were presented during the poster session and the two parallel project idea pitch sessions. Day 2 again started with a short plenary session, mostly focusing on how to prepare an actual PO using the improved ITEA Community website and templates. The rest of the day participants were given ample opportunity to further discuss their project ideas and form the first project consortia.

The lively group discussions resulted in 23 plenary project idea presentations, some of which were already presented at the end of day 1, while others were held at the end of day 2.

As in the past years, the event was evaluated well with a high overall score of 3.9 out of 5.0 (51% questionnaire response). In general, feedback was mostly positive. Improvements for next year are still to be made in e.g. clustering of project ideas, enhancing the project idea tool with a search option and in structuring (information about) the pitch and group sessions to further support the attendees.

ITEA 3 community website enriched

With the PO Preparation Days behind us, the next step of the ITEA Call process is approaching: the PO submission (deadline 31 October 2014). To ease this process, the ITEA community website has been enriched.

In January, ITEA already launched a new public website as part of its ongoing efforts to support the community of R&D actors, companies, research institutes and countries active in Software-intensive Systems and Services with high-quality and up-to-date information. In line with this improvement and design, ITEA has now also updated the (restricted) community website.

Besides the implementation of the new corporate identity, ITEA aimed at a mobile-friendly website which automatically adapts to the used device. In addition, the process flow towards a PO and FPP submission has been improved without thoroughly changing the already familiar procedure.

Based on feedback from the community and an analysis of the frequently asked questions, a 'Project checklist' has been introduced. It will guide the user through the submission flow; during the PO and FPP creation and submission, the website will directly show the incomplete or missing parts of the submission. Additionally, an online help has been implemented to give direct information on which data is expected in the form.

Another important change has been implemented in the final step of the submission. Where in the past the submission was the final step in finalising a PO or FPP, re-submissions are now allowed until the PO/FPP submission deadline. An innovative step in the ITEA process flow is the generation of a preview of the merged PO and FPP annex document, including the data provided online (consortium, cost and effort figures, rationale for public funding, etc.) and project related data. Throughout the process flow it will always be possible to create a preview of the merged proposal to see if the final document meets your requirements. The provided PO annex document is prepared in such a way that the layout of the final document conforms to the corporate identity.

Finally, to better integrate the ITEA websites and to ease switching between them, both public and community website are now accessible via https://itea3.org with a single log-in.

We hope that the improvements help the ITEA community to create high quality PO and FPP proposals and we are continuously working to improve the system. The ITEA Office is happy to receive feedback based on your experience – info@itea3.org.

Identity and Access Management

a success story

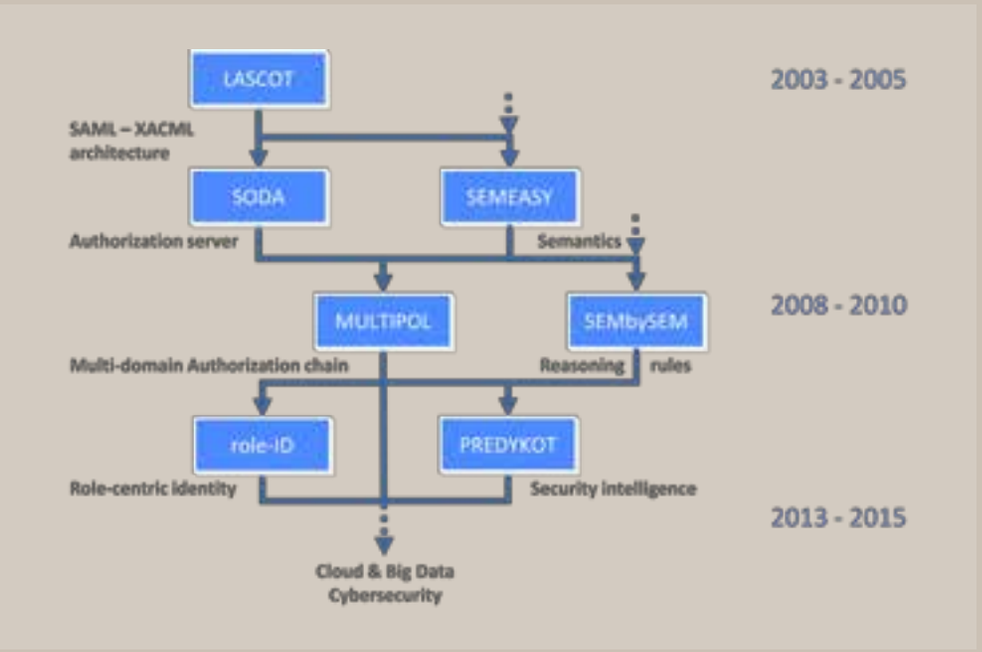
EVIDIAN has always focused its ITEA participation within a track for controlling the access of users to the information system at large. In the early 2000s, EVIDIAN held the view that investment by organisations in security issues was going to increase, and that Identity and Access Management (IAM) in particular would become an important element in governing security.

Many analysts, such as Gartner in the US or KuppingerCole in Europe, created specific sectors of security to monitor Identity and Access Management. They confirmed that investment by organisations in IAM remained at a high level, growing in the period 2003-2016, despite the economic downturn observed in 2007-2009.

EVIDIAN has participated in or led ITEA projects in line with this vision in order to progressively create each essential function of infrastructure expected by the IAM market or to renew the obsolete existing technology by addressing, in turn, each limitation of the state-of-the-art. The illustration on the next page depicts the consistent affiliation between these related projects, involving a lot of expertise brought in by many participating partners.

Web Access Manager

In 2003, LASCOT played the role of evangelist for today's web protocols aiming at interoperability of security operations. With LASCOT, EVIDIAN has added identity federation functions to its web gateway, an innovative development conducted in the earlier PEPITA ITEA Call 1 project. This opened up the world of web interoperability, turning the web gateway into service provider and identity provider, at the heart of all interactions of social networks today. While vendors of identity federation were just imagining future possible use cases, in 2005 EVIDIAN already



had a pragmatic and realistic solution, Web Access Manager, deployed in a wide inter-governmental organisation, or in four continental plates of a company in 'follow-the-sun' mode. Today, 300 installations are running Web Access Manager on four continents. Customers welcome the efficiency, the adaptability to complex environments and the inter-domain capability of this solution, whose revenues were multiplied fivefold between 2005 and 2013.

With SODA, EVIDIAN was looking for a solution for infrastructures that outsource access control. This principle helps application developers to focus on business functions and usually prevails in a service-oriented architecture, evident in the current SaaS trend. SODA indeed has applied this to the operation of industrial processes. EVIDIAN built a module to control the access to these processes, and derived from the project a generic authorisation server, expected to be heavily deployed in different sectors such as banking or industry.

To make it usable by security officers on a daily basis, MULTIPOL then integrated this authorisation server into the global access control chain. This crucial step centralises management of security policy, regardless of the approaches used for access control: dynamic, through the authorisation server, or by traditional provisioning of accounts in applications. To do so, EVIDIAN has added an application for governing security, which uses a policy model based on roles. MULTIPOL also benefited from the findings about semantics to achieve interoperation between the security policies of several independent domains.

Policy Manager

The Policy Manager application integrated in the EVIDIAN offer as a result of MULTIPOL is the control tower of the security policy of a company. It equips 200 customers in Europe and is deployed at 50 new customers every year. In addition, Policy Manager is progressively replacing 250 installations that have an older policy model.

However, initial deployments of the new access control chain have highlighted that the governance of security was now up to business people in organisations, and not to IT managers anymore. The Policy Manager application was originally intended for highly skilled personnel for the technical management of users and rights. EVIDIAN has therefore developed in role-ID and included in its solution a workflow-driven portal that allows employees and managers to request and validate updates to the security policy in order to manage the lifecycle of user rights. This operational 'user-centric' approach has become indispensable to any deployment of an access governance solution. The new Request Manager module that Evidian has integrated as a standard element of its IAM solution is now being installed at 20+ new customers every year.

Security Intelligence

The Identity Governance & Administration (IGA) product line took off thanks to two breakthroughs which in fact needed to be simultaneous: finding an innovative model of security policy that is both powerful and flexible, developed in MULTIPOL, and backing it by a workflow oriented towards business users, itself controlled by policy, developed in role-ID. As a result, the previous IGA generation is being renewed smoothly, keeping these customers satisfied and boosting the revenue by 30% with new customers. Going one step beyond usual governance, PREDYKOT has found that these now complete mechanisms for applying a security policy do not ensure that security in companies is effectively in line with best practices. So PREDYKOT developed intelligent mechanisms precisely to help managers close the loop of the security policy, by proving that the desired rules are effectively applied in reality. For the project EVIDIAN developed new sensors, feeding new reasoning engines that provide dynamic feedback on security rules, with approval by security officers. By the end of 2014 EVIDIAN is going to introduce a first version of a new Security Intelligence solution that informs security officers about identified risks and non-compliance of access control rules. 65 risk situations can be reported so far and many correlation scenarios are under development. Built as an add-on to existing IAM infrastructures so that existing customers will leverage the investments they have already made, the new Security Intelligence features will be of interest to potentially 600 customer installations over the world. They will first consolidate the revenue of EVIDIAN's User Access Services product line, then form the basis of a new Security Intelligence solution.

"EVIDIAN is currently working on the prospect of applying these innovations to the fields of Cloud Computing, Big Data and Cyber-Security, inventing creative bridges between these domains," concludes Thierry Winter, ITEA project coordinator and EVIDIAN CTO.

More information:
www.evidian.com

Community Talk with:
Juhani Latvakoski

In this second of the community talk series, Juhani Latvakoski picks up from where Frans-Josef Stewing left off. Juhani is working as a principal scientist and senior project manager at VTT in Finland. He graduated from University of Oulu some 25 years ago and started his career at Nokia at the end of 1980s before moving to his current employer, VTT, where he has worked in a variety of roles, from research scientist and research team leader to principal scientist and senior project manager.

"I have been involved in challenging exercises related to research, development, creation of intellectual properties, business initiation and related R&D operations with many industrial companies and research organisations. Some highlights are my contributions to the world's first GSM base stations in the early 1990s and work as a co-founder and CTO of a spin-off company, experiences from entrepreneurship and exit processes. All these have, in fact, been a very valuable basis for R&D work within VTT and industry-driven research such as that within the ITEA framework involving collaboration with SMEs, larger enterprises and academia.

"While I had some light experience of ITEA projects at the end of 1990s, I first really became involved in ITEA when I took part in the Project Outline days in Toulouse 2002. It was an interesting experience to get involved in a successful project preparation process and to meet some people there who had been involved in ITEA from its early stages. Afterwards I took a big step by initiating my own proposal in 2005, the Usenet project, which was focused on M2M service networks. Later, the Usenet project received a 'Silver Achievement Award' at the ITEA 2 Co-summit 2011. Subsequently, I initiated and led the A2Nets project, which recently had its final review and has now finished. The A2Nets project focused on the challenges of applying autonomic computing and communication paradigms to exploit the real power of such M2M networks. The way in which the A2Nets project has contributed to M2M business aspects can be regarded

as having created a powerful springboard for European industry to take a leading position in this very crucial area. Under the ITEA framework, I'm now working on initiating a new ITEA project, M2MGrids, focusing on dynamic cyber-physical systems. Let's find out whether we see the third step in this project chain focusing on M2M/IoT/CPS systems.

"Given my involvement as a project leader, I have had more a bottom-up view of ITEA, experiencing the organisation from the individual and project perspectives. When thinking about ITEA as a community, it seems that the scale of events has increased over the past decade or so, and it is better organised today than previously. Certainly that's the feeling if I compare the first PO day I attended in Toulouse and the PO days of more recent years. That's a change for the good and shows that things are heading in the right direction.

"I must admit that in the beginning my first impression of ITEA projects was that they were not particularly efficient but having gained experience from real project participation and leadership, I realise that ITEA framework is indeed a very effective way of getting innovation into the world through the products and services of the companies and organisations that participate. The projects are very flexible and highly market oriented. Flexibility is very important because the world is constantly changing and you have to be continuously adaptive. ITEA has created a framework that enables the flexibility for projects, and this has been especially important for SMEs. The length of the projects – normally from two to three years – is too long a planning period for SMEs. This is because they need continuously to be adaptive to changes in the market and to get innovative products launched quickly to stay alive. ITEA has created an excellent framework for playing a strong mentoring and supporting role. This is evident, for instance, in the project reviews that are very constructive and try to help projects improve their results. As for the results, it seems that ITEA projects have really created added value and have had impact on the economy.

"I'm not sure exactly what ITEA means when it speaks of 'seizing the high ground' but for me I think of high quality in the projects, the results, and the supporting framework. I think this is also important for the future of ITEA if it wants to achieve the impact to which it aspires, such as getting innovation quickly into industry and society. And to achieve this, ITEA has to be attractive on a pan-European scale to attract the investment of companies and public authorities throughout Europe and further afield. The ITEA projects can complement EU and national R&D programmes because they are quite close to the industries and markets and have a nice combination of contributions from big industrial companies, SMEs and RTOs.

"I would say that the excellent collaboration that exists within the projects is an expression of 'happiness' because when the partners of a project are happy, they are motivated to contribute to the project – and when the partners are happy, the project is happy. This means that flexibility and freedom to innovate are created and that is ultimately visible in the high quality results achieved in the projects. And the results boost the creation of innovations in the form of products and services, which creates happiness in society. Just think about being able to monitor physical health – it can boost our quality of life, and that makes us happy. As far as I'm concerned, being involved in ITEA has given me a framework for work and collaboration with nice people from different backgrounds … and that's something I'm happy doing.

"Now all that rests for me to do is to hand over to the next in line. There are nice people from industrial companies and SMEs, and colleagues from various research institutes who have been collaborating within ITEA for a shorter or longer time. However, perhaps it is interesting for readers and also for me to have a view more from an industrial perspective and also from ITEA framework level perspective. Therefore, I'd like to invite Medur Sridharan from Bull to be next because I think he has a view on both of these aspects."

ITEA project results enhancing people's lives

Happiness is … cycling back to health

The latest release of the OSAmI ergometer for cardiac rehab now includes integrated virtual glasses (or virtual reality headset, oculus rift) that give the rehab patient a 3D image of a virtual bicycle tour. In the future this therapeutic physical/haptic cycling experience will contain different scenarios and even allow (virtual) competitions between ergometer cyclists in a kind of a serious game setting. All this rehab option needs now is the healthcare legislation to put real patients on real saddles.

ITEA 2 project OSAMI-Commons

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PROFIcomms

Probing sensor application possibilities

PROFIcomms, a distributor of active components for network applications specialising in services for companies that use and build telecommunication networks, is an active participant in the ITEA community and part of the LifeWear project that took up the challenge to develop a new platform to create new market opportunities as well as boost the position of European technology in the new generation of wearable computers.

Figure 2 *Interrogation system with built-in broadband light source, spectrum analyser and four FBG sensor multiplexer*

"Our research is focused on strain, pressure and bending sensors. The sensors we have developed are used in the industrial environment for the optical sense of quantity and able to span the large distance between the sensor and the interrogation or evaluation system," says Frantisek Urban of PROFIcomms. Most of the sensors are developed on the basis of Fiber Bragg Gratings (FBGs) that consist of a diffractive structure created in optical fibre core (see figure 1).

Interrogation system

"We are able to get specific reflected and transmitted signals while using broadband light sources. Most of our sensors use the deformation of optical fibre and hence induced change in the central wavelength of the reflected light." Optical fibre deformation of is generated by a measured force delivered by a mechanical transducer. The package or substrate of the optical sensor usually acts as the transducer. Tensile strength, compressive strength and bending angle are possible quantities to be measured with these sensors. Optical spectral analysis is necessary for processing and evaluating received light signals. Our interrogation system consists of a broadband source and tuneable filter able to perform a spectral analysis of the incidental light signal.

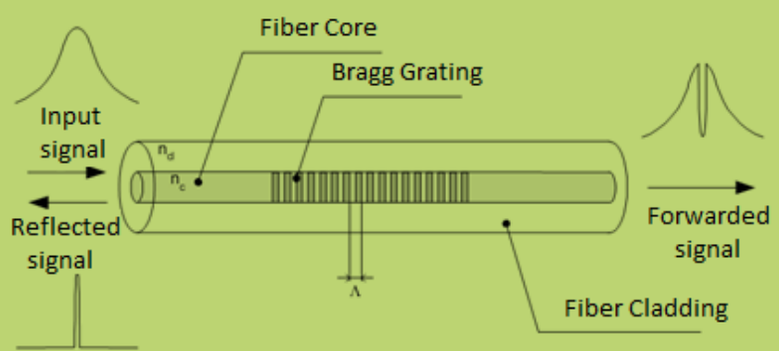


Figure 1 *Fiber Bragg Grating function description*

The system also includes a TCP/IP interface for communication. "Our system can multiplex simultaneously up to four FBG sensors through optical switch," Urban says. The interrogation system is shown in figure 2. The interface for the connected PC is created using LabView software.

Early stage

PROFIcomms' first sensors are still at the prototype stage and, as such, are undergoing long-term stability (ageing) evaluation and reliability testing. Nonetheless, two applications for the sensor are already being explored: strain measurement on the large concrete structures used in power stations (from fossil to nuclear) and the weighing of moving vehicles on the road through a weight-in-motion (WIM) system. Potential first customers include the Czech Research Institute for Nuclear Energy, which is working on the implementation of the sensors, and a private sector company that will implement WIM systems. Before these sensors actually reach the market, they will be customised to determine the best application match before further development enables them to be delivered as a commercially viable product.

PROJECT SHOWCASE

ADAX

Protecting information systems from complex attacks

With information the life blood of today's society, cybersecurity is vital to business, government, consumers … in fact, any entity or person involved in the conveyance of information. To protect the security of the information from intrusions and vulnerabilities detected in the system as well as to exploit security events and react quickly and efficiently by launching countermeasures. But how can you determine whether the countermeasure will be effective? The ITEA 2 project ADAX (Attack Detection And Countermeasures Simulation) is taking up this challenge by studying the feasibility of solutions to help operators assess the seriousness of active threats and the impact of the reactions on their respective ICT system.

Project details
10030 ADAX

Project leader
Adrien Philippe Bécue
Cassidian
CyberSecurity SAS

Partners
France
6cure
Cassidian Cybersecurity
Institut Mines-Télécom
NETASQ

Turkey
Bogazici University
PlusOneMinusOne
Provus A.S.
Yapı ve Kredi Bankası

Start date
January 2013

End date
July 2015

Website
http://adax.boun.edu.tr

An attacker-defender game

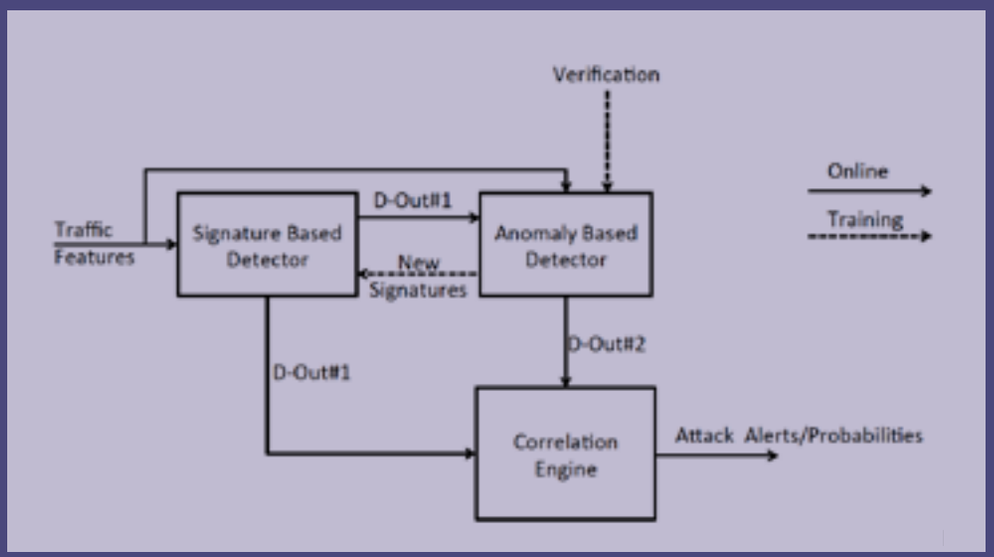
Software-intensive systems can be regarded as targets, assets or threats from a cybersecurity perspective. Two opposite sides of the same coin: they are targets for cyberattacks but they are also assets for cyberdefence purposes. So the art in this 'battle' is to know the nature of one's vulnerabilities and to be in a position to organise defensive countermeasures. In essence, then, knowing the enemy, his intentions and the tools at his disposal is central to cybersecurity. While a number of commercial off-the-shelf cyberdefence tools exist, there is a clear need in today's market for detection to be extended with reaction capabilities and support mechanisms to enable security operators to make informed decisions in a dynamic situation.

Everyone is concerned (but do they know?)

Of course, the first question to be answered is what is the purpose of the attack? It comes down basically to two things: theft (of information, money, data, IT asset) or sabotage (wilful destruction of assets, procedures, data, knowledge). So preventing such cybercrimes can enable a whole range of stakeholders to benefit. Individuals need to protect their privacy, service providers want to secure online transactions and critical infrastructures must be protected from cyberterrorism. For example, recent attacks on healthcare infrastructures, involving sensitive patient data contained in electronic dossiers harm patients, healthcare professionals, hospitals, authorities, media and society as a whole. For system developers and industry that must be constantly vigilant to the threat of sabotage of their assets or theft of their intellectual/industrial property, the need for an effective solution is paramount.

Hybrid detection to face new complex attacks

An interesting innovation in the ADAX project is a hybrid detection technique in which behaviour-based and signature-based detection are combined. The former is a probabilistic approach that helps to identify new attacks (0-day attacks) while the latter is a deterministic approach that is largely applied to known attacks. Combining both techniques helps improve detection rate (true positive), lower false-alarm rate (false positive) and shorten the detection time. It saves time and costs for both customers and security service providers in the detection phase.



Spotlight on banking

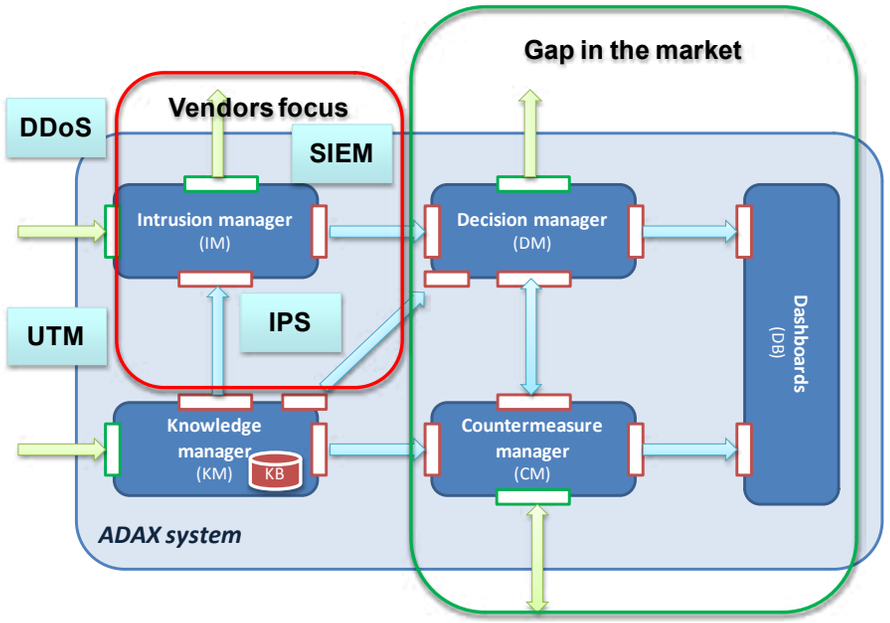
In the ADAX project, the main use case is on banking, a sector that is targeted by (and vulnerable to) many cyberattacks. Project leader, Adrien Bécue of Cassidian CyberSecurity SAS, cites the distributed denial of services attack on global payment system in 2010 which saw VISA and Mastercard hit hard by a so-called Anonymous Hacktivist Group – services were laid low and costs ran into many millions of dollars. "This project wants to improve detection of new complex attacks and accelerates the detection-to-remediation loop through the development of enhanced decision-support tools," Adrien Bécue explains.

Full-loop simulation for a wise decision

"Banking is a perfect use case," Adrien Bécue suggests, "because it is a sector where decision-makers have a stringent need to assess impacts before instigating countermeasures." The development of a network simulation tool enables attack and countermeasure impact assessment before implementation on real IT infrastructure. A new metric called 'Return-On-Response-Investment' (RORI) has been set up to calculate the 'cost-benefit' of all different countermeasures which can be implemented to remediate to a particular attack. This is how security people and banking people get to speak a common language!

Fast exploitation

Fast exploitation is being performed through direct integration of the decision support module developments in the Cassidian CyberSecurity SOC (Security Operation Centre) in Elancourt, which implements upgrades of Cymerius(®) security supervision software resulting from ADAX. As a manufacturer of Unified Threats Management (UTM), Netasq has implemented the advanced detection functions developed in the context of ADAX in its new commercial appliance. 6cure has designed and developed a prototype component transforming a generic traffic filtering rule to a netfilter specific rule that can be deployed and undeployed. This prototype is integrated within 6cure's Threat Management solution. P1M1 has successfully transferred the network simulation capabilities developed within ADAX to market, recently receiving the award from Turkish Minister of Development Cevdet Yilmaz as the 18th fastest growing company in Turkey. PROVUS has successfully applied the security expertise from the ADAX project in the banking industry and was recently acquired by MasterCard as payment transaction security specialist. YAPI KREDIT will host the final demonstration of ADAX IT infrastructures in the Istanbul region and will thus benefit from innovations resulting from the project as a pilot customer. Fast exploitation of results by academic partners Institut Mines Telecom and Bogazici University is being performed through publication with a record of 12 conference papers, 7 journal papers, 4 workshop presentations and 1 book chapter.



DDOS: Distributed Denial of Service
UTM: Unified Threat Management
SIEM: Security Incident and Event Management
IPS: Intrusion Prevention System
KB: Knowledge Base

Market potential

"Although the market for such cybersecurity protection is largely dominated by North-American players," Adrien Bécue says, "interest in Europe is growing as awareness of the frequency and complexity of attacks, and the urgency to be prepared with effective defence, is starting to take root." In France, for instance, a major opportunity to exploit the results of ADAX may arise from current regulatory changes regarding critical infrastructure protection. The French Government has set up a list of key strategic actors called 'Operateurs d'Importance Vitale' (OIVs) that will be closely scrutinised for physical/cyber threats and attacks (from the theft of strategic data to active sabotage). A law is being enforced to strengthen security obligations applying to OIVs with potential coercive measures. This will trigger substantial market growth for cybersecurity national-certified services and solutions. Insurance companies will then flow down these standards in their terms and conditions applying to critical infrastructures. It will undoubtedly benefit European players, including the ADAX consortium. Besides this, ADAX stands out from the very 'detection-focused', state-of-the-art solutions by focusing more on decision-support and remediation. These features are left quite unaddressed by dominant North-American players, while they happen to be key to triggering the adoption of cybersecurity services by promising sectors like banking or utilities.

More information

http://adax.boun.edu.tr

Calendar

18 November 2014
CELTIC PROPOSER'S DAY
Basel, Switzerland | www.celticplus.eu

19 November 2014
EUREKA INNOVATION EVENT
Basel, Switzerland | www.swiss-innovation.com/eureka

20 November 2014
SWISS INNOVATION FORUM
Basel, Switzerland | www.swiss-innovation.com

19-20 November 2014
BITS&CHIPS SMART SYSTEMS 2014
's-Hertogenbosch, Netherlands | www.bits-chips.nl/smartsystems

26-27 November 2014
EUROPEAN NANOELECTRONICS FORUM 2014
Cannes, France | www.nanoelectronicsforum.org

9-10 December 2014
ARTEMIS-IA PRE-BROKERAGE DECEMBER 2014
Vienna, Austria | www.artemis-ia.eu

10-11 March 2015
CO-SUMMIT 2015
Berlin, Germany | https://itea3.org

INNOVATION REPORT 10037 ATAC Stijn Rammeloo, Barco, Belgium

ATAC

High-quality, fast automated testing

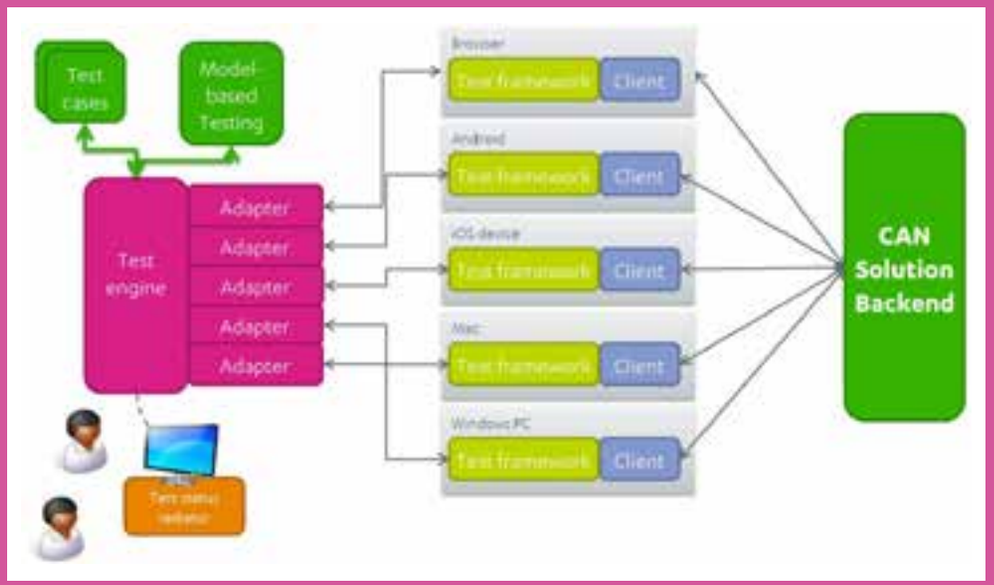
The increasing risk of software defects remaining undetected in software-intensive systems and causing severe system failures must be mitigated, with quality assurance being performed earlier, more frequently, and in a more automated fashion than in traditional development processes. The ITEA 2 ATAC project addressed the problem of the automated testing of complex and highly configurable software-intensive systems with the aim of enabling European industry to maintain its leading role in engineering in this area.

The ATAC consortium of 15 partners from industry and research jointly defined a set of industrial case studies in different application domains as the driver for the development of methods and tools geared to creating solutions for the automated testing of complex, highly configurable software-intensive systems.

The case studies allowed these methods and tools to be continuously evaluated so that the applicability and effectiveness of the solutions in a complex, industrial environment could be ensured. To safeguard that the impact on research and industry was high, the project results were packaged into a set of expressive demonstrators for use, for instance, at international symposia and industry exhibitions. Throughout the project, the support provided by the Public Authorities was vital. Their support made the difference since it enabled the companies to work on a topic, which is not really at the core of their activities.

Improved methods and tools for test automation

The development of automated testing for the effective and efficient quality assurance of complex and highly configurable systems re-used existing mature techniques and provided a systematic and tool-supported quality assurance process. One of the focal areas was the development of domain-specific languages (DSL) to support high-level modelling of test behaviour and test configurations. Other focal areas included better evaluation of and improvement to existing test suites and their quality as well as testing in the context of complex systems development where components are provided by multiple



parties in parallel and need to be continuously integrated. In all, twelve tools were developed, from commercial and open source to a freely available automated testing framework.

Since many of the partners in the ATAC consortium developed building blocks for the verification and validation of software intensive systems, a major goal was to improve the interoperability of testing tools and enable the forming of tool chains to meet the needs of the industry. The integration of the tools developed in the project into the environments and processes of the case study providers enabled the techniques and tools to be transferred into practical application. The dissemination of the project results, both within the partners organisation and through external channels will lead to increased productivity, reduction in costs and work needed for testing and maintenance, and faster time-to-market with better quality of software.

Transfer of information

One of the major goals of ATAC concerned the collection and investigation of test automation techniques and methods, best practices, tooling, modelling guidelines, domain specific languages for testing and testing patterns. The results are available in an online repository in the form of tool evaluation reports and scientific papers and contain the results and measurements of their application in the industrial case studies from a large variety of domains. The publicly available and well-published content of the repository will make the adoption of test automation easier for the European software industry and is available for anyone interested in testing complex and highly-configurable systems. Furthermore, a book will be written, led by Ericsson and VTT, about the results of this project, and will include guidelines for other companies.

Achievements

The approach taken by this ITEA 2 project was quite remarkable in that rather than look for a homogenous solution – one size to fit all, as it were – the recognition of the fact that the different sizes (industry needs) made it evident that a heterogeneous solution would be required. So this new and innovative type of research approach can be seen as state-of-the-art: no one single solution, but different guidelines and tools adaptable to specific needs and markets. One of the key objectives of ATAC was to bridge the gap between the results of test automation achieved in the well controlled academic environment where a lot of the day-to-day industry constraints do not apply and potential application in the industry. By going downstream to the actual problems that the partners were encountering, concrete solutions were targeted, and achieved.

The knowledge transfer between academia and industry was an important achievement and the interaction between the two worlds in a kind of symbiotic relationship throughout the project enabled the rapid and effective transfer of information. A real highlight of the iterative approach in this relationship can be found in the substantial number and quality of university Master and PhD programmes that were quick to incorporate the work of the project while all the industrial partners realised an improvement in their level of test automation and test quality due to the input from their academic counterparts. In addition, the number of scientific publications was astoundingly high.

The partners have benefited in a variety of ways from the results of the project. The list is extensive but a few of the examples of the concrete results achieved in this highly downstream project approach can be cited here. Barco, the project coordinator and traditionally a hardware oriented company was hampered by the cost of poor quality in its transition to a mixed hardware/software enterprise. It was able to use the results to develop a company-wide common framework that has generated a 20% reduction in software verification and validation effort. Elektrobit reduced the costs of VoIP network functional testing by 30% and through the introduction of a production testing platform within different EB Wireless Business Areas, managed a 40% reduction of investments for production testing costs per new product. Maximatecc, a developer of rugged hardware and software for mobile machinery in construction, mining, cargo, transportation and other industries, collaborated closely with Bombardier and increased the number of active licences from 30 to over 100 (›300%).

This impressive list of achievements, which includes the defining and processing of eleven use cases with requirements, gap-analysis and validation along with the preparation of the many new tools for test automation, will make a fundamental contribution to strengthening European industry and give a substantial thrust of innovation and quality assurance within the associated industries. ATAC has indeed got test automation well and truly on the agenda of European industry.

INNOVATION REPORT 10021 MANY

Detlef Scholle, Alten Stockholm/XDIN, Sweden

MANY

More efficient reuse of software code
A boost for high-performance embedded systems

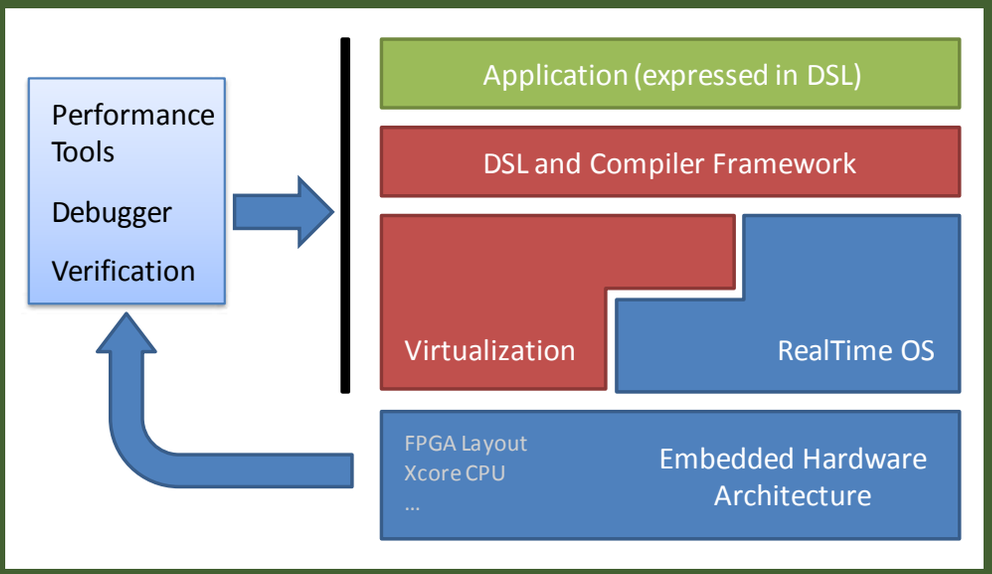
The practice of reusing existing software has become the norm among semiconductor developers. This is due to the increasing significance of time-to-market in fast product development along with the ability to reuse existing tested and verified software code, as software applications become more complex. With the arrival of many-core semiconductor architectures comes the problem of how to rewrite software applications to exploit the increased parallel processing available. The ITEA 2 MANY project came up with an improved programming environment for embedded systems, one that will facilitate the faster development of applications for a variety of hardware platforms.

The traditional response of increasing the frequency results in higher energy consumption. While the hardware industry has introduced multicore hardware, improving performance by efficiently utilising different cores is only possible if software can be run in parallel.
A tough and complex task that requires the manual intervention of skilled experts. MANY focused on the legacy code of the software already developed and the possibility of automatically reusing code, which creates potentially huge savings, and set about providing tools that solve the issues and enable better utilisation of the technology. The unique aspect of MANY is that it not only solves some dead ends by providing better operating software but also optimises the quality of the output and, thus, performance.

Key applications
The principal applications of MANY are threefold:
Firstly, as a software source whereby a software tool capable of automatic conversion reads classical single-core software and produces parallelised software that will run faster (optimised) and use the higher-performance that multi-core hardware provides. Its benefit is speed and power.
Secondly, tools that offer interactive support by providing extensive analysis and pinpoint with mark-up, leaving the the developer to decide where to make the actual changes. The interactive tools provided by the MANY project are proving popular among developers and help them to both understand and learn.
Finally, the third main application is changing the actual code during execution rather than pre-runtime in order to provide a virtualisation platform on which to run the application. This platform is effectively the layer between the actual hardware and the application, and therefore it is possible to combine this third approach with the previous ones.

The major beneficiary of the tools are software developers since the tools solve two basic issues that are considered almost impossible to do manually: to enable the user to run legacy

software (single core software) on new advanced high-performance hardware (multi-core hardware) and to parse and transform source-to-source legacy code (single core software) into optimum high-performance application (multi-core software, or parallel software code). The reuse of historical investments on software to get high-performing applications makes the cost nil or negligible.



Breakthrough

This parsing of legacy code represents a major breakthrough; it is a complex technology with great expectation and huge potential at low investment. The results of the project will enable some of the partners in the consortium to immediately begin generating income and for the European and the Korean industries, the MANY tools can become a major advantage. Estimates of the project results show important and significant savings in development costs. There are actually no other similar technologies around – others have either not yet reached their final objectives or have focused only on a simplified task. Having no tool is tantamount to entering a 'black hole' of a never-ending development cost.

The project aim of high-performance, low-power computing is particularly important in the embedded systems market in which video recognition, streaming media and complex algorithms are typical applications in the telecom and radio communication domain as well as increasingly in the automotive domain. Some examples of benefits for the final customers of high-performance products may include faster mobile phones or device, longer lifetime on handheld devices or potential for increased performance. Advanced and complex algorithms make it possible to take full advantage of the hardware performance.

Added value of the results

There are two distinct areas in which the project achieved results: development tools and code analysis and transformation. The development tools derive from the need of high performing software applications and the associated software support whereby sequential software migration enables parallel programming to harness multi-core architectures and address multi-core architecture requirements. Standards ensure the portability of application and performance while runtime mechanisms facilitate program efficiency. The added value of MANY in code analysis and transformation is evident in finding hotspots (static analysis, hotspot region isolation), dynamic dependence analysis (less target specific, cross-platform analysis), automatic parallelisation (broader coverage of codes and target architectures, extended parallelisation and optimisation capability) and last, but not least, unique integration of the tools.

This added value extends into execution platforms/virtualisation in respect of hardware transparency, core utilisation, programming and reliable embedded systems as well as other ITEA projects. One such example is ViSCA that focuses on the virtualisation of smart cards in which the added value of MANY can be found in tool-related virtualisation for robustness and hardware transparency. Another is H4H that is geared to optimising HPC applications on heterogeneous architectures whereby MANY's embedded market focus can add value. Equally, MANY has benefited from the building blocks of the TSP STEP tool generated by the ParMA project and GEODES whose energy efficiency at node level and low-level communication schemes proved useful.

Concrete opportunities

Collaboration with the Republic of Korea in this project has generated a mutual and beneficial outcome, benefiting the technology as well as open up business opportunities. The ITEA/EUREKA Ko-Summit meeting in Korea established concrete opportunities, such as Vector Fabrics in the commercialisation of the Pareon tool (a tool that smoothens multi-core software optimisation) which is being used in a few dozen locations, and where negotiations are ongoing with a major Korean company in the mobile domain, while SevenCore's hypervisor has been selected by Hyundai Heavy Industry for its new HP robot controller. In moving to many-cores in future Professional Mobile Radio (PMR) products, TCS is considering using tools provided by MANY tool providers and at Ericsson more than a hundred personnel have been taught to use the tools developed within the project for the next generation of modems. Furthermore, Alten, the project coordinator, has generated increased competencies, which is a valuable asset in customer projects. Finally, and importantly, the open source development will have a positive impact in the academic environment as in the case of improved techniques for scheduling time-division multiplexing that are now also part of the Quantitative Evaluation of Embedded Systems course in the Embedded Systems Master's curriculum at all three Dutch universities of technology. In conclusion, the project can be expected to strengthen European industry, especially in terms of shortening time to market and reducing upfront investments.

Save the Date!
CO·
SUMMIT
2015
SMART INDUSTRY:
IMPACT OF
SOFTWARE
INNOVATION
10-11 MARCH 2015
BERLIN
GERMANY

Switzerland takes over EUREKA chairmanship from Norway

Swiss EUREKA Chairmanship 2014-2015

During the Ministerial Conference in Bergen, Norway on 17-19 June, the Delegate of the Federal Department of Economic Affairs, Education and Research EAER, Bruno H. Moor, assumed Switzerland's year-long chairmanship of EUREKA. In a speech, Mr Moor explained that the implementation of the new Strategic Roadmap for 2014-2020, finalised last year, would begin under Switzerland's chairmanship.

Switzerland has set four goals for its chairmanship:

1. EUREKA should work more closely with national promotion agencies and improve interaction between national funding agencies and EUREKA.
2. The EUREKA network should be strengthened by expanding cooperation with associated countries (e.g. Canada, the Republic of Korea and South Africa).
3. EUREKA should be positioned in the European Research Area; identifying and harnessing synergies between EUREKA and other initiatives within the European Research Area.
4. EUREKA should be more oriented towards providing added value and evaluating the benefits of EUREKA instruments to Industry.

One of the highlights of the year for Switzerland will be hosting the EUREKA Innovation Event in Basel on 19 November, organised in cooperation with the Swiss Innovation Forum.

EUREKA Innovation Event

19 November 2014 - Congress Centre Basel

Innovative companies from Europe, the Republic of Korea, Canada and South Africa are invited to network at the EUREKA Innovation Event 2014 in Basel. There will be over 300 participants and there is the possibility to meet them personally in matchmaking sessions. In three parallel sessions keynote speakers from leading European companies will present on:

- Information and Communication Technologies
- Medical and Bio Technologies
- Industrial Technologies

Furthermore, a selection of successful EUREKA projects will be presented during the wrap-up of the day's events. The winner of the EUREKA Innovation Award will be selected from among the projects.

During the event, all EUREKA Clusters will be represented in a joint booth welcoming participants willing to know more about Clusters and their way of working.

http://eureka.swiss-innovation.com

ITEA 2 CAP and EASI-CLOUDS projects receive the Korea EUREKA Day Award 2014

KOREA EUREKA DAY 2014

After the success of the ITEA 2 RECONSURVE project in 2013, this year both the ITEA 2 CAP (Collaborative Analytics Platform) and EASI-CLOUDS (Extendable Architecture and Service Infrastructure for Cloud Aware Software) projects received the Korea EUREKA Day Award in recognition of developing the most innovative and commercially viable EUREKA project. The EUREKA project UES (Ubiquitous Oriented Embedded Systems For Globally Distributed Factories Of Manufacturing Enterprises) was the third winner in this category. The projects are recognised for successfully engaging in transnational industrial R&D and furthering Korean-European collaboration. For the ITEA projects, the awards were presented to project representatives from Thales Communications & Security (EASI-Clouds) and Innodep (CAP) during the Korea EUREKA Days dinner in Oslo, 26-28 May 2014, jointly organised by the Korea Institute for Advancement of Technology (KIAT) and the EUREKA Network.

ACQUEAU	19 November	Deadline Full Project Proposal Submission		www.acqueau.eu
CATRENE	26-27 November	European Nanoelectronics Forum 2014	Cannes	www.catrene.org
Celtic-Plus	18 November	Proposer's Day	Basel	www.celticplus.eu
EURIPIDES²	20 November	Closing Date for Full Project Proposal Submission		www.euripides-eureka.eu
EUROGIA2020	21 November	Call 03 2nd Cut-Off Date		www.eurogia.com
	13 February	Call 04 1st Cut-Off Date		

Colophon

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Submissions:
The ITEA Office is interested in receiving news or events linked to the ITEA programme, its projects or in general: R&D in the Software-intensive Systems and Services field.
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ITEA 3

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