ITEA 3

Smart Cities – a world of opportunities

Focus on Belgium

Opening of ITEA 3 Call 2!

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Editorial

I am writing this just a few days after the 2015 ITEA 3 PO Days, and they were again great. This year in the Brussels' Le Plaza Hotel, the event again gathered some 270 participants who had entered around 75 ideas to kick off the building of new consortia and projects.

The PO Days are a very dynamic and energetic event of networking and brainstorming with posters and working group sessions. A brief report on the event can be found on page 8 of this issue. At this year's event two overarching themes were clearly in the spotlight. First of all, the importance of a global view on innovation and business, beyond European boundaries. Of course, there have been many successful participations from outside Europe in ITEA, see for example the story on Smartec from Egypt in this issue. But the massive presence and activity of Canadian companies in this year's event is unprecedented. The commitment of Canada for ITEA was further underlined by additional networking visits in Belgium and in the Netherlands. From the ITEA Office we will do our best to help the Canadian companies to make their participation in ITEA into real business success.

A second theme that I would like to highlight here is the digital transition and the impact that it has on all businesses. Our Vice-chairman Philippe Letellier in his opening elaborated on the implications and on the opportunities it presents to industry. I would like to add to this that ITEA can only credibly support its projects in this digital transition if its operations have top quality also from the 'digital' perspective. Already for quite some years we have truly digital means for, for example, proposal submission, proposal evaluation, sharing project review documents and content management in relation to the public website. For this Call we added new functionality around the project ideas, e.g. to support participants to indicate their interests and link up to ideas already before the event thereby making the limited time to Call closure as efficient as possible. We hope that this will be a next step towards a 'Digital ITEA'.

September was a very important month with also the first ITEA customer and end-user workshop in Istanbul on the topic of Smart Cities. And we can be proud of this new kind of ITEA event as you can read on page 22 of this magazine.

Furthermore in this 22nd issue of the ITEA Magazine: as usual a wealth of strong articles on ITEA projects and the people who make them happen. We have a story on successes achieved by Indra, a story on ITEA in Belgium and a Canadian viewpoint, the Community Talk by Frank Jaeger, a project story on ICARE and a number of shorter items. A strong point for ITEA is also that the 3DPathology project for the first time demonstrated that it can be done: 10 months between initial idea and running project.
Enjoy the read!

Yours sincerely,

Fopke Klok

Belgium's information and communication technology (ICT) sector is flourishing. Agoria, an organisation that fosters the interests of the technology industry in Belgium, carried out a study in 2012 that reveals software as a significant contributor to ICT activity in Belgium, with almost 20% of Belgian ICT workers producing software. Although only 2% of Europe's population lives in Belgium, it is responsible for 3.3% of the turnover generated by the software sector in the EU.

Country focus: Belgium

ICT and software are flourishing

When we zoom in on software, a true spill-over effect of software to all sectors in Belgium can be observed. An elaborate study has recently been conducted by Omar Mohout (SIRRIS) which presents an infographic (see next page) about starter companies in Belgium, i.e. a company that creates and commercialises a software-intensive product with a scalable business model. This quite unique study concerned around 1500 companies, representing more or less 40% of the target group (thereby excluding integrators and consultants). Two particularities stand out regarding Belgium. First of all, the exceptional B2B context, attributable to the fact that Belgium, and Flanders in particular, is a small and very dense region where almost all customer/collaborator companies can be found within a 100km radius (the strong manufacturing industry in Flanders is a nice example). A second particularity has to do with the founding year of these companies. Between 2010-2015 more software-intensive product builders have been created than in the past 30 years. Two peaks, one in 2010 and in 2014, stand out. The 2010 peak can be explained by the removal of the distribution barrier for software, with software products starting to be sold as services (SaaS - Software as a Service), whose zero distribution cost enabled more companies to sell software products more easily. The second peak in 2014 can be explained by the incredible boost of the start-up accelerator programmes in Belgium.

Dense fabric of SMEs
Mathilde Reumaux, EU policy and projects officer at Innoviris, elucidates. "Brussels has a very dense fabric of SMEs, and ICT is the most innovative sector in our portfolio of projects that we fund. And as a capital city, Brussels attracts a lot of start-ups, mainly ICT. Hardly surprising when you realise that ICT accounts for 59% of employment in high-tech industry in Brussels. On a national level, also, we see nearly a quarter of all start-ups opting to locate in Brussels. Another reason for this concentration is that Brussels has a lot of research capacity and a very active ICT community. This, in turn, creates opportunities to find partners and business relationships. And there are a number of incubators that help ICT companies get off the ground quickly and successfully."

Companies throughout Belgium benefit from various organisations that help them to sustainably reinforce their competitive position. Support comes in various ways, from direct and personalised advice, to assisting companies in participating in (inter)national collective research projects. "SMEs get the chance," Mathilde says, "to quickly test new technologies without having to make large investments."

2015   **#BETECH STARTUPS**

TYPE		MATURITY				TOP 10 INDUSTRIES		TOP 5 INVESTMENTS IN 2014		FOUNDING YEAR
72%		51%	37%	8%	3%	1. AdTech 6. Mobility		1. Amplidata €14.9M		
28%		Startup	Scaleup	Deadpool	Acquired	2. Manufacturing 7. EdTech		2. Odoo €7.4M		
						3. HealthTech 8. MICE		3. Showpad €6.8M		
						4. FinTech 9. MusicTech		4. Unified Post €6M		
						5. HRTech 10. Retail		5. Cartagenia €4.2M		
						*Counting for 54% of total		*Counting for 39% of total investments		1980 2014

More than **49,000 JOBS CREATED**

BY PROVINCE

33%	16%	13%	10%	6%
(Brussels)	Antwerp	East Flanders	Flemish Brabant	Walloon Brabant
6%	5%	5%	3%	2%	1%
Limburg	West Flanders	Liège	Hainaut	Namur	Luxembourg

BY REGION

Flanders	50%
Brussels	33%
Wallonia	17%

STARTUPS WITH FOREIGN BRANCHES

10%

31%	11%	11%
USA	France	Netherlands
7%	4%	
UK	Luxembourg	

UNIVERSITY SPIN-OFFS

UGent	20%
KUL	18%
ULB	16%
UA	15%
VUB	12%
ULG	10%
Others	8%

TOP 10 STARTUP CITIES

1. Brussels 6. Liège
2. Antwerp 7. Louvain-la-Neuve
3. Ghent 8. Namur
4. Leuven 9. Kortrijk
5. Hasselt 10. Wavre

TOP 3 DOMAINS USED

.com 57%
.be 28%
.eu 5%

LEGAL SETUP

54%	43%	3%
BVBA / SPRL	NV / SA	Others

Sample Size **+1,000 STARTUPS**

Omar Mohout · © Sirris 2015   sirris

Support and incentives

Innoviris wants to promote not only ICT but also its integration in other industries. And to keep its successful companies. "With mobility and migration so easy these days that you can simply take your laptop and head off into the Cloud, as it were," Jonathan Duplicy, scientific advisor at Innoviris suggests, "so we need to provide support and incentives to keep them in the region. This comes through funding but also through the creation of an ecosystem." By stimulating the formation of clusters, this will also enable support for all phases of innovation, namely from idea to infrastructure to commercialisation. Innovation vouchers are also provided to enable companies to get support from external actors like universities or research centres. "And, of course," Jonathan adds, "we try to encourage companies to participate in projects with a European dimension, such as ITEA, or with a collaborative regional or national dimension, in which networking, knowledge-sharing and collaboration not only nourish them but also creates further business opportunities for them – in areas like Smart Cities, IT Security and Transportation. In essence, then, we try to push and fund innovative projects so that companies can acquire and use the ICT capacity even more, from idea to commercialisation."

Future of software

In Flanders, there is a similar picture. Isabel Michiels, scientific advisor at IWT, the government agency for Innovation by Science and Technology that helps Flemish companies and research centres to realise their research and development projects, says, "If I look at the software picture now, it is clear that software is used everywhere in every domain, from production to financial services. A good example in Belgium is Barco, mainly a hardware producer of display and visualisation solutions for multiple sectors, but a company that uses software to innovate. And if we go a step further into the future, the need for software-intensive solutions will simply increase with the growing complexity brought on by the Internet of Things. This will pose an enormous challenge for research in the near future."

Collaboration for maximum innovation

"With regard to ICT, Flanders funds ICT research in two ways," explains Isabel. "Firstly, annual strategic funding for IMEC, the largest independent research centre for nanoelectronics in Europe, and iMinds, Flanders' digital research & entrepreneurship hub. iMinds brings together the expertise of over 900 researchers at 5 Flemish universities and other knowledge centres. Secondly, project funding through the IWT horizontal schemes, mainly the programme for industrial projects and through the EUREKA Clusters and the EU Joint Technology Initiatives (JTIs) internationally. A third way is currently being implemented whereby funding of clusters will support the ecosystem in crucial domains in Flanders."

Collaboration is an important aspect of Flemish innovation policy. It enables companies and knowledge centres to tackle common technological issues efficiently as well as allows them to develop their internal know-how. IWT offers funding and advice to any form of collaboration that supports innovation. Isabel: "The closer that companies and universities can collaborate on research, the better. It helps to maximise the strategic component of research in general."

The role of programmes like ITEA adds a further international dimension to the collaboration picture, which is very important for Flanders. "Cluster programmes like ITEA are unique in the European landscape as they work bottom-up and they initiate from practical industrial problems that a group of companies wants to address. This stimulates more creativity and collaboration around concrete real-life problems. One company starts with a problem, it is discussed at a brokerage event and other partners with similar interests (problems and solutions) come on board. This helps to innovate exactly in those areas that are the most strategic for the industrial landscape."
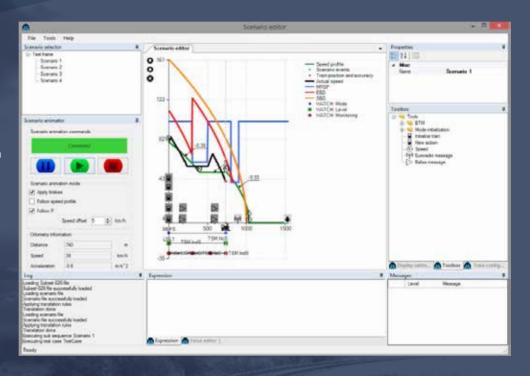
ERTMS Solutions
on a highway of opportunities

ERTMS Solutions was born in 2006 in a private Brussels-based incubator, Phidani Software. This incubator is a software factory, taking its roots in software modernisation, i.e. in products enabling an old IT environment to shift to a modern one, without the loss of data or having to redevelop existing applications.[1]

In 2008, a mix of competences among the team generated the idea to develop software tools for the railway industry.

European Train Control System[2] (ETCS) is a standard created in the 90's, aimed at unifying European railway signalling safety standards, increasing interoperability and safety, reducing costs and boosting railway capacity. Combined with GSM-R, it is called European Railway Traffic Management System (ERTMS). "Now, you understand better where our name comes from," explains Frédéric Du Jardin, COO at ERTMS Solutions.

"Since its foundation, ERTMS Solutions created more than one new product per year. It was only software at the beginning but now we develop hardware as well. From simple software tools and libraries, our products evolved towards Test & Commissioning tools (e.g. the ERTMSCamCorder), maintenance tools (e.g. the BaliseLifeCheck), monitoring tools (e.g. the Sniffer), and ERTMSFormalSpecs, a domain specific language combined with a modelling tool chain and a testing environment. The latter is open source, under EUP Licence, which means a real advantage for the railway community, but no business model for us at first."

"The ITEA programme helped us improve our tool, and use it in the very context in which we wanted to start using it: the ERTMS specifications' modelling. This project is now closed for us after three years, and we knew we would need more funds to finish the modelling work, and maintain our tool ERTMSFormalSpecs: we were recently granted a three-year subsidy for that purpose under the Connecting Europe Facility (CEF) call for proposals."

"This subsidy, in contrast to that of ITEA, is not focusing on R&D, but on the implementation phase after R&D… There really was a momentum, because we now understand better the potential of our product ERTMSFormalSpecs! This potential has recently been confirmed by contracts with the industry, for instance with Thales Group."

"Why did we receive such a subsidy? Well I guess there are very good reasons for that: a young, dynamic and growing company active in software in the transportations sector (one of the growing sectors at the moment)… Over the last two years, we have doubled our manpower!"

"Unemployment in Brussels is unfortunately quite significant, so this kind of programme can really give a boost to SMEs and let them grow and create prosperous industrial and financial ground in town. Software provides a highway of opportunities, so it's definitively a sector to develop in Brussels. And our industry, railway, is in need of competences in this domain: talk to anyone in our industry, everybody will confirm it!"

More information
https://ertmssolutions.com

[1] For more information, have a look at http://www.raincode.com/
[2] Train Control is another way of saying Railway Signalling

ITEA PO Preparation Days 2015

Bigger and Better in Brussels!

The beautiful, historic and exceptional venue Le Plaza in Brussels was the scene of the very inspiring PO Days 2015, held on 22 and 23 September. A perfect setting as the PO Days were already exceptional in themselves in many ways; the number of registrations were higher than ever, an all-time record total of 74 project ideas were submitted before the event, over 60 project ideas were presented during the poster and/or pitch sessions and the first six Project Outline drafts already created in the system during the event.

A special thanks goes to the delegation of 16 Canadian companies accompanied by the representatives of the Canadian Research Council, who enriched the lively discussions during the get-togethers.

Online networking
This year the Project Outline preparations for the second Call of ITEA 3 already started well before the actual PO Preparation days. In May, the updated networking tools of the ITEA Community website were launched, enabling interested parties to upload their project ideas, search for and invite partners, join project ideas and already start the first discussion. During the PO Days project idea contacts had the opportunity to meet the 269 participants from 18 countries face-to-face, continue the discussions and consortium-building and fine-tune their project ideas.

Main players

The tried and tested programme enabled all participants to get the most out of their participation in the event. For the newcomers and others that were interested, the plenary presentations of Vice-chairman Philippe Letellier, Programme coordinators Erik Rodenbach and Marc Sturzel and Office Director Fopke Klok included an introduction to ITEA, the PO Days, the Call process, the websites and the legal and financial aspects.

After that, it was up to the participants to do the work! They were the main players in the beautiful theatre of Le Plaza. And they delivered: during the poster session about 60 project idea leaders presented their idea to the interested participants in a more personal setting, enabling them to get to know each other a bit better, before presenting their idea in one of the two parallel project idea pitch sessions to a bigger crowd. The rest of the days, participants were given plenty of opportunity to further discuss the project ideas and form the first project consortia. The lively group discussions resulted

Engineering, Crisis, Digital Economy, Agriculture and Automotive. Media, which was a very important domain in the past, was back in one proposal this year. A few proposals were solely dedicated to security but security appears as an inevitable theme in many of the previous topics.

Another way to analyse the landscape of ideas is through the importance of interoperability, scalability (with a platform orientation and federation of platforms) and tsunami of data which come from the digital transition and are so important for the digital city. Clearly security is a challenge in any domain. Modelling (in particular 3D modelling) and process optimisation are key tools used in many proposals. The service orientation of our economy leads to more and more service oriented proposals with a clear user orientation based on use cases and on demand characteristics. Regulation and standardisation continue to be a main interest in ITEA. Business is a clear concern in many of our proposals and the value chain analysis appears as a shared tool in many of these proposals.

in 25 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.

The landscape of ideas this year was dominated by the strong comeback of E-Health, lots of ideas on Smart Cities and E-Manufacturing and the Internet of Things was everywhere. Besides these main trends, we got several proposals on

As in the past years, the event was evaluated well with a high overall score of 4.1 out of 5.0 (42% questionnaire response).

ITEA 3 Project
Outline Preparation
Days 2015

Old guard

An old guard of the PO Days is Pasi Kuvaja for M-Group (Department of Information Processing Science of University of Oulu) in Finland. He has been attending the PO Days since their very beginning in 1998. According to him "the PO Days are the perfect place to meet old friends, new people and companies. A network is built from people and when you get to know them, you can know who to trust and you can build a consortium from that. Without meeting the people in person, this is more complicated. Nowadays, when I have a project idea, I can call a few contacts, quickly explain the idea and they immediately understand whether it may be interesting for them or their company or not." To the question what had changed since the beginning, Kuvaja replied: "What I remember from the first PO Days is that it was not as professional as it is now. For example, the upload of ideas did not work that well, so sometimes we had to send the proposal by email or even by fax! A lot of progress has been made since the beginning. A negative tendency is that fewer and fewer public authorities show up at the PO Days. In the beginning, they came to meet the people and evaluate the proposals. They were more involved. When you only read the proposal on paper, it is not the same. Luckily this doesn't keep the number of ideas from growing. It is really impressive to see how many ideas are presented here in Brussels!"

New restructured Call calendar shows good results!

One of the main priorities stated at the launch of ITEA 3 in 2014 was to shorten the period from project idea to project start, with the ambition to get it down to ten months. This is important as we want to stick to the reality of the market; if you take too much time to get your innovation on the market, you might be too late. Therefore, a restructured annual Call calendar was implemented and, although we are not achieving our overall ambition yet, it already is showing some good initial results!

ITEA 3 Call 1 project 3DPathology, led by Barco in Belgium, officially started at 1 July 2015, meaning that it took even less than ten months after the Project Outline Preparations Days (23-24 Sept 2014) to take off. At this moment, three other projects of Call 1 have already started as well and several others are about to kick off. Another good effect of the restructured Call is that there are fewer, and less important, changes in the proposed consortia. As funding decisions in most countries are made more quickly, there is less of the uncertainty that causes partners to leave the project. This ultimately means that the initial innovation of the project is guaranteed.

ITEA 3 Call 2 is open now!

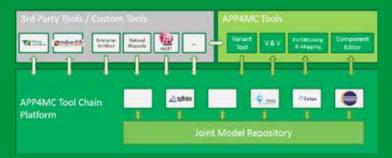The submission deadline for the Project Outlines is 30 October (17:00 CET).

Are you still looking for partners or wanting to join a proposal? Leave a message on the Message Board of the Community website or contact the ITEA Office (info@itea3.org). Of course, we are also available for all other questions about the Call.

Canadian-ITEA 3 Outreach Days

As a follow-up and extension of the PO Days in Brussels, the Canadian Embassies in Belgium and in the Netherlands organised a two-day Outreach Programme for a large number of Canadian SMEs that participated in the ITEA 3 Workshop in Canada and in the PO Days this year. The goal was to maximise their time in the region by connecting them with new possible partners and programmes. During the first day, the Canadian delegation visited three companies (Barco, CGI and Proximus) in Belgium while sharing their experiences in ITEA and discussing possible partnerships. On the second day, the Canadian companies and public authorities had an inspiring and fully packed agenda for a seminar in Eindhoven, organised with the help of EIT Digital, the High Tech Campus and Brainport Region Eindhoven. The seminar included a presentation from her Excellency Ambassador of Canada to the Netherlands Sabine Nölke, who stressed the strong Canadian-Dutch relationship. She explained that "most impressively, the Netherlands is Canada's second largest source of foreign direct investment globally." She also noted how Canada strongly supports the EUREKA-ITEA 3 mechanism and that "few problems can be solved in isolation, but many challenges can be met and opportunities realised by working together." Furthermore, Mayor of Eindhoven Rob van Gijzel explained the importance of the Brainport region and how they could support the Canadian SMEs. A panel session with experienced ITEA project leaders from Philips, KE-Works and ViNotion gave the Canadian delegation the opportunity to have a broader understanding of how to handle a project in ITEA 3 from a participant's perspective. ITEA Chairman Rudolf Haggenmüller closed the day at a Canadian-Dutch networking event by thanking the delegation for the great week and motivating them to get started! He stated that "the Canadians came into ITEA 3 with a bang" and demonstrated their enthusiasm and commitment to forging strategic partnerships.

ITEA 2 AMALTHEA4public project moves to ECLIPSE

The AMALTHEA4public project has launched the APP4MC (Application Platform Project 4 Multi/Many-Core) open source Eclipse project to continue development and enhance the distribution of the platform.

The APP4MC project provides a tool chain environment and de-facto standard to integrate tools for all major design steps in the multi- and many-core development phase. A basic set of tools will be available to demonstrate all the steps needed in the development process. Companies and R&D partners will benefit from the de-facto standard for tool chains and the support given by the features of the extended APP4MC tool chain platform. The platform can be easily adapted to commercial or in-house tools. This eases cooperation between different companies

and organisations where various tools are already in place, but based on different data inputs. These barriers will be eliminated by the AMALTHEA system model as a central element of the entire tool chain.
Please visit us at: http://projects.eclipse.org/projects/technology.app4mc

APP4MC Features
- **Multi-core** - The platform allows users to distribute data and tasks to the target hardware platforms. The focus of platform is the optimisation of timing and scheduling in embedded multi- and many-core systems.
- **System Model** - The System Model contains extensive information about software, hardware, timing behavior, and constraints for the system under development.
- **Event tracing** - Users can evaluate their systems with tracing tools, identifying problems and discovering potential for improvements for their embedded multi- and many-core systems.
- **Workflow** - The workflow engine enables the user to use, customise and extend the existing workflow elements according to their needs.

ExcitingErgoRides
An immersive cycling experience

An outcome of the ITEA 2 project OSAmI Commons, the OSAmI Ergometer, is still developing. Due to medical sensors and network connections patients can exercise their supervised ergometer rehabilitation training sessions at home.

In October 2014, ITEA Magazine 19 reported on an interesting enhancement. The corresponding release of the OSAmI ergometer includes integrated virtual glasses (or virtual reality headset, oculus rift) that gives the rehab patient a 3D image of a virtual bicycle tour.

Now a further enhancement is available. The ergometer is mounted on top of an industrial 3D movement platform. The rehab patient rides through a virtual game environment which is as well visualised using the Oculus Rift headset as it provides physical feedback. The patient now can perfectly immerse himself in the virtual environment since he feels acceleration forces and impulses of movement.

The physical-feedback ergometer, its integration of virtual 3D reality and its entertaining gaming and training courses were developed by the computer science student project group "ExcitingErgoRides" organised in close cooperation between the hospital Schüchtermann-Schiller'sche Kliniken, MATERNA GmbH and the Technical University of Dortmund.

In August 2015, the students presented the ergometer at the well-known trade fair "gamescom" in Cologne which is the world's largest event for computer and video games. The ergometer received great feedback from the visitors, particularly from those trying a ride.

ITEA Success Story

INDRA

Intelligence at the edge of the network – a vision ahead of its time

By Eloy Gonzalez Ortega

If I have to summarise the most important follow-up to the ITEA projects that Indra has conducted in the past, I would have to mention two important topics that were tackled during these projects (Nemo&Coded, Imponet and DiCoMa) which have proven to be extremely important over time: big data technologies and real-time data integration platforms.

Big Data Technologies
With respect to Big Data technologies, they were investigated and used to a larger or lesser extent in all these projects, applying them to the energy domain at a time when few people or organisations were considering it. A special mention should be given to Imponet, as we foresaw the need to use these technologies

for handling and processing large amounts of data coming from the Smart Meter deployments that were being initiated at the end of the last decade. In this sense, we included this topic in the scope of Imponet and conducted extensive research on the subject, implementing a significant number of use cases related to Meter Data Management (MDM). The results were extremely encouraging and it gave us a head start on the competition, especially from the US, in developing an MDM product that was largely based on the utilisation of open source big data technologies. Time proved that our prediction was very accurate, as ever since there has been an increase in the number of countries from different geographical areas around the world that have passed legislation and implemented regulation for the open access to end customer energy data. The large amounts of data provided by these Smart Meter deployments make it impossible to comply with this legislation/regulation, unless these technologies are employed for the acquisition and processing of this information.

In the case of the exploitation of big data technologies by Indra, there have been numerous products in the energy domain that either have been developed or have been enhanced by the use of these techniques and technologies, such as the aforementioned MDM. Because of its importance and significance, we should point out that the Web Portal for Residential Customer Meter Data implemented by Gas Natutal Fenosa, the third largest utility company in Spain, was developed by Indra reusing part of the results produced by the Imponet project and making extensive use of the experience and expertise accumulated during this project. This portal is being deployed for the overall customer base of the company, which is in excess of 3 million customers, representing a sizable portion of the total Spanish market. In the future, Gas Natural Fenosa will be rolling out this platform for other market segments and is foreseeing a future deployment in the companies that it owns and operates in other parts of the world, mainly in South America. The combined number of customers
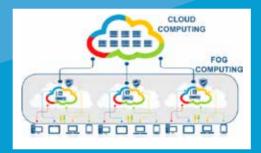
be served by this portal will then reach over 20 million worldwide, just for this company alone.

Real-Time Data Integration Platforms
In the case of real-time integration platforms, Indra predicted the need for these kinds of tools in the energy domain for implementing the (back then) novel concept of the Smart Grid based on its extensive knowledge and experience in implementing similar solutions in other areas and domains, such as air traffic control (ATC), defence and railway operations.

Compared to the current electricity networks, designed to operate according to a unidirectional flow, future Smart Grids will enable the integration of distributed bi-directional load flow, enabled by the wide application of information technology devices. This radical change in the way of generating, transporting, distributing and consuming energy creates many challenges that affect the entire business model around electricity. One of these challenges is the transformation of the current monitor and control chart from a Central Control Centre (where the intelligence required to manage network infrastructures is provided by human operators and control systems) into a management architecture based on distributed intelligent devices capable of performing enough to perform complex event processing and simulations as well as to execute high-level technical and business rules. This challenge will transform the network operation process from a top-down approach to a distributed control perspective, providing new services to final users, optimising the use of energy resources and gaining significant knowledge on the generation and demand trends in these very dynamic and volatile environments.

As Indra saw it, these new requirements demand an electric grid with "distributed intelligence" that has the potential to significantly increase the operational efficiencies of the electric power system resulting in benefits realisation through additional cost savings. Consequently, the modern grid must be able to adapt from proprietary, isolated and single-function (a.k.a. siloed) centralised management systems to a multi-function and integrated distributed grid management system that will simultaneously employ both decentralised and centralised systems in a highly coordinated manner. In Indra's view, this distributed system should support the ability to quickly, reliably, and securely collect, organise, and analyse large volumes of data and develop actionable information without overwhelming the centralised systems. An information system consisting of a hybrid of both centralised and decentralised processing systems can help provide this functionality. This distributed information system will help with processing, resolving, and delivering the large amount of actionable data needed to effectively manage and control the electric power system. In addition, it will be able to support immediate near real-time decision making based on locally available information and

also deliver appropriate trending and other actionable information to other information systems. Distributed intelligence will allow the dynamic analysis of information and the relaying or sharing of important information, while discarding redundant or non-important information.

In general, the energy domain is starting to understand that this future scenario will be realised through the deployment of real-time integration platforms that are inherently distributed and based on loosely coupled architectures into what is increasingly being called Open FMB (Field Message Buses). From this point of view, Indra's vision was ahead of the time, as it supported and encouraged this conceptual vision which is clearly aligned with the growing global trend towards the computing paradigm supported by the processing of information in the field nodes where the data is acquired, in what is becoming known as "edge computing", or alternatively "fog computing". This is the paradigm behind much of the current effort on the IoT (Internet of Things).

This paradigm is based on distributed computing nodes conforming a layer of intelligence at the edge of the network to process some analytics and take some decisions there, instead of processing everything in the cloud. In this sense, this concept represents an intermediate layer between the sensors and devices in the field and the computing capacity in the cloud, as shown in the graph. Regarding the energy domain, the implementation of this computing paradigm in the near future will imply that a substantial part of the decision making will take place at different levels of the electric grid topology by independent but coordinated nodes.

In the case of Indra, the development of this kind of platform for the energy domain was in its road map since 2008, and part of the development of such a platform was included in the scope of the projects Nemo&Coded, Imponet and DiCoMa. The resulting product, iSPEED, has proven to be first of its kind and is currently being implemented in utility companies from different parts of the world, such as Elektro in Brazil, or generating interest in organisations such as NRECA (National Rural Electric Organisation) or the SGIP (Smart Grid Interoperability Panel) in the USA, among others. For Elektro, the iSPEED platform will be used for the monitoring and control of the entire distribution network, which is comprised of more than 170,000 transformers and serves more than 2.4 million customers in a rural and urban hybrid environment. Elektro is a subsidiary of Iberdrola and the holding company is closely monitoring the results of this implementation project with the idea of extending the use of iSPEED to other subsidiaries and to Iberdrola itself. In this future short-term scenario, the combined number of customers for the Iberdrola group indirectly served by this platform, by monitoring and controlling the distribution network servicing them, will be in excess of 25 million worldwide.
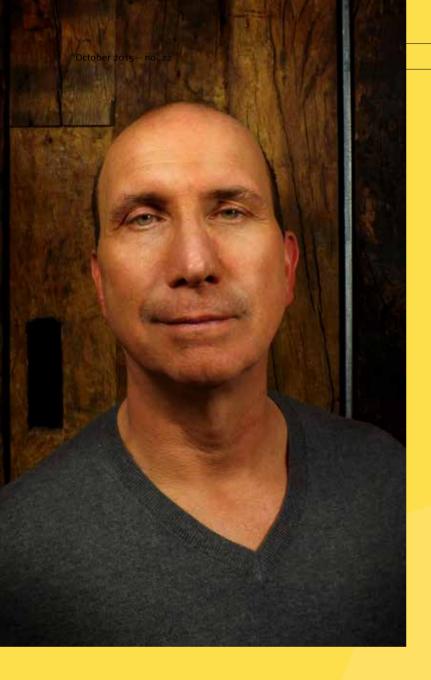
Community Talk with:
Frank Jaeger

"These [EUREKA/ ITEA] projects help us get the development done that otherwise would not be done, or only to a very limited extent."

In this Community Talk column, Frank Jaeger, Head of Project Management in R&D at BCE (Broadcasting Center Europe), a major European technical services provider in the fields of TV, radio, tele-communications and IT located in Luxembourg, gives his views on being an ITEA community member. His road to IT is an interesting one, having begun with agricultural economics and moving into the realm of marketing and economics before settling on IT at the beginning of the 1990s. "With all the IT hype at the time," Frank says, "I figured it would make sense to get into that area. I started working at SAP – developers of enterprise software information systems – as a system architect and arrived in Luxembourg 20 years to the day at the company I now work for, BCE, the technical division of the RTL Group, where the focus of my work then was on IT and IT security."

All this was happening at the turn of the century amid fears of the 'millennium bug' and the potentially disastrous consequences this could have had. It was at this time that Frank Jaeger was appointed head of IT security. But, as we all know, the fears had been unfounded and the disaster the world had feared did not take place. A restructuring at the company led to Frank being asked to create a research and development department, which he did, and this is where he has been since 2005.

"And it was more or less at this time that my first contacts with ITEA formed. It happened when the research institute now known as LIST, the Luxembourg Institute of Science and Technology, was looking for partners to work on an ITEA project whose focus was content packaging and personalisation in order to comply with the cultural and linguistic needs of the EU countries. The core slogan of this project was 'any content, any platform, anywhere and anytime'. There were ten or so companies involved and I vividly recall that Philips was one of the partners because it was the period when Blu-ray discs were starting to become the dominant media for high-definition optical content storage." Frank continued his involvement with ITEA projects,

task because we are involved not only in ITEA projects but many other projects that are pan-European. Also in the beginning I was more involved in the technical aspects and now it's the administration that tends to take up the chunks of my time."

Frank is keen to underline the need for EUREKA/ITEA projects since they help create and develop new technologies. In the last few years these have been the very important Cloud technologies that are important not only for BCE but also for the media industry in general. "These projects help us get the development done that otherwise would not be done, or only to a very limited extent. And it is also easier now, through ITEA, to contact our government and to get the relevant funding. But while this funding may only cover, say, up to 40% of costs, it does provide that extra to help us make our products competitive in the market. What's more, these projects help us network within our industry and develop working relationships with other companies and research institutes. In this way we gain a cutting edge over our competitors. In ITEA-speak, we can seize the high ground. Or, in my own words, put the icing on the cake!"

"As for happiness, it's an emotion, of course, that has to be triggered. We are a technology company and technology is a key driver for our wealth and prosperity – something that makes us happy – but it also has potential to benefit others, be it in health for instance or, in our case, entertainment. So happiness is something where everybody benefits from the ideas and technology we develop in projects and this in return has a positive impact in terms of jobs and, as a result, the general well-being of society. We may still be far from technology being the answer to happiness but every little bit helps, even if it's just something you get delivered on your smartphone that makes you smile. In a personal sense too, being involved in the ITEA community has given me happiness. I still have a job that I like a lot(!) and I have built up many contacts with other people that are often really quite amazing personalities – it certainly gives me a happy feeling to be part of such a community."

the last being ICARE (*see project showcase article in this issue – ed.*), which finished in February this year. "This project was also concerned with content delivery but then in a very cost-effective way through the Cloud. Our part in this project focused on managing content by asset management, or MAM, for the Cloud, and our company is already using this on a commercial basis. So that's also a nice spin-off from being part of a project that has real, tangible goals."

Looking back over his decade of involvement in the ITEA community, Frank remarks on the growing transparency and professionalism he has noticed over the years. "For example, you have newer and better websites, information is distributed in a very transparent way, there is

the magazine, of course, so every time there is something new in ITEA, we get easy access to this information. Also the process of getting an ITEA project off the ground has become more structured and a lot easier than I perceived it in 2005. A lot of the bureaucracy – both on the side of ITEA and the public authorities – has gone and things have become much faster and more efficient. In any case, that's my personal view."

Frank's role in the ITEA projects has not changed much over the past ten years – he still manages and coordinates – although he tends to have a lot more responsibility these days. "I now coordinate with ITEA, the public authorities and the internal project members and our R&D teams. This has become quite a challenging

ITEA project results enhancing people's lives

Emotional expression training

EmoTuner is a mobile application that motivates people with autism to train their social skills with the help of real-time facial expression recognition.

As a gamified learning app, EmoTuner rewards the user when using emotion in a socially acceptable manner.

Users gain better social skills which improve their relationships and enable them to better integrate into their social environment.

More information: emotuner@comland.si and ITEA 2 project Empathic:
https://itea3.org/project/empathic.html

Comland
ITEA 2 project Empathic

SME in the spotlight

SMARTEC: lines of business driven by software

Mohamed Khairy, founder of one of Egypt's most successful high-tech start-ups, SMARTEC-Group, is full professor at the Electronics and Communications department of Cairo University where he also founded the Centre for Wireless Studies (CWS), one of the premier telecommunications research centres in Egypt. His involvement in high-tech start-ups began after he returned to Egypt from the USA in 2001. "I co-founded one of Egypt's most successful high-tech start-ups that was acquired by Intel, and I needed a new adventure. SMARTEC started in 2008 as a training and consulting company in the field of Embedded Systems but in 2010, our focus shifted to development, assisted by funding from Egyptian funding agencies."

Four business lines
"The company's first path went through a funded project into the content delivery business and a software product that analyses customer data usage and fetches, in advance, the content needed by

the customer. We started this track in 2011, and a US-based start-up was spun off to explore this direction. Next, we took in software development for telecommunications, creating through another fund, TEMPO, a tool for 3G network optimisation that is used by Vodafone Egypt to enhance its KPIs. A third line of business is Automotive Embedded Systems, specifically a self-powered Tyre Pressure Monitoring System (TPMS) that integrates a vibration-based energy harvester and a communications module to convey the pressure readings to the dashboard or to a smart phone. Finally, the most important line of business deals with smart buildings."

It is this last area that brought SMARTEC into the ITEA Web of Objects (WoO) project. This gave Egyptian partners, with funding from ITIDA (a national funding agency in Egypt), the opportunity to collaborate and cooperate with European partners. "Through this involvement, SMARTEC developed a full building automation system that is currently being sold and deployed in different

homes and businesses. Building automation is one of the most sought-after applications and we developed a fully-fledged system including a mobile application which can be used to control everything in a house or an office building."

Key enabler
Software is the key enabler to all SMARTEC's products. "Even though we are not a software house," Mohamed points out, "everything is driven by software in our different lines of business. We use mobile applications, either Android or iOS. We also use Java extensively and Embedded C." He puts Egypt's flourishing software industry in the last decade down to the establishment of several funding agencies that, in any case, gave SMARTEC the opportunity to build capacity and start on solid ground. In fact, the company's most successful line of business, TEMPO, was also developed using funding from the Egyptian government. Furthermore, the Ministry of Communications and Information Technology (MCIT) in Egypt has several funding programmes that help start-ups. The most visible programmes are run by the Information Technology Industry Development Agency (ITIDA). The Egyptian telecommunications regulator is also very supportive, currently funding projects that target the telecom sector.

"And, of course, you cannot underestimate the support that comes with being involved in a EUREKA cluster, like the ITEA WoO project. Interacting with the European, American and Asian companies and academic institutes helped formulate our vision in this area and gave us some potential partners with whom we can collaborate if needed."

More information:
http://smartec-group.com/

PROJECT SHOWCASE

ICARE

Every cloud has a silver lining – that's entertainment!

Entertainment is big business. And computers and clouds are changing the way entertainment reaches us. ICARE, an ITEA 2 project that proposed using network cloud architecture to allow distributed, scalable and adaptive solutions, set out to build a bridge between traditional media and a brave new world of internet-based services to transform our entertainment experience: from anywhere in the cloud to any destination, irrespective of audio or video format, together with multi-screen data and entertainment services.

An important shift
Looking at the role played by software-intensive systems in the field of entertainment, Eric Auffret, of Thomson Video Networks, who led the project, points out that there is an ongoing shift from a material-based to a software-based industry. "We are migrating from hardware to software more and more, from equipment to services. This is a very important trend

and we are just at the beginning. Software will be everywhere. Our aim in the project was to be an actor in this migration process within the entertainment and audio-video domain." The pre-ICARE state of the art centred on primary distribution in conventional TV production largely managed by production companies while the TV channels aggregated all the contents, building a programme, inserting advertising, news, talk shows and so on. At the other end the consumer is managed by operators that ultimately 'present' the picture on displays, whether mobiles, TV screens or tablets.

"So what we wanted to do," Eric explains, "was to create software-based solutions through an innovative architecture to enable audiovisual components, sourced from various providers in the cloud and delivered separately, to be seamlessly reconstructed in a user device and rendered synchronously on one or more terminals with the guarantee of a given level of QoE – Quality of Experience. One very important aim of the project was to transform the passive

TV watcher in an active actor in this 'new TV paradigm', fully Cloud and Networks centric. To do this, we targeted several use cases in the consumer games area – using mobile phones, tablets and TVs – thereby providing a vehicle to enable an interactive or two-way relationship between provider and consumer. This notion had already been conceived by Thomson Video Networks before the project began but the work done in ICARE helped more clearly define the use cases and associated business cases."

Technology arrow with a business point

Among the key innovations of ICARE are the application of cloud technologies for the complete audio-visual and entertainment chain, an ICARE platform as a service for media and content applications, transparent caching (caching network traffic without requiring configuration on the user/browser side) combined with CDN (Content Delivery Network) and cloud services such as watermarking (copyright protection for digital intellectual property). However, as Eric is keen to underline, "as project leader I stressed the need for the development of the technology to be focused on business results. Technology without use cases is of no value." So ICARE set out to actually demonstrate cloud-based professional applications and consumer-centric entertainment, creating a multi-source framework for accurate media content synchronisation.

"I suppose if I think about the difference we have made through the ICARE project, by introducing CDN in the cloud and the solutions based on this, the possibilities are limitless. But pin me down to the key achievements and I would say that we have been able to reduce time to market, lower the cost of ownership for the end customer and facilitate the creation of necessary new business models."

Exploitation on two levels

There are two levels of exploitation evident in ICARE: technology and products. In terms of the technology, the framework and associated service registry enable easier cooperation between service consumers and service providers and there is increased visibility of digital services, such as online APIs (application programming interfaces), towards potential

customers and greater visibility and revenue as an enabler of a digital services ecosystem for the service registry provider. On top of this, rapid service experimentation and partnering between service providers and potential customers are facilitated along with feedback from the service consumers to the service providers and developers. "However," Eric suggests, "the main pay-off of the project comes now and in the near future with the creation of a wealth of exploitation opportunities, especially for the partners of the consortium."

New live video delivery paradigms

Thomson's *Beyond Every Screen* strategy announced at its IBC in 2014 aims to enable media companies, video service providers and broadcasters to maintain their high standards of video quality and to evolve seamlessly, cost-effectively and profitably as new live video delivery paradigms emerge, meeting several critical video delivery requirements for a modern broadcast operation. Essentially, network operators benefit from the advantages of virtualisation and cloud computing without having to compromise on quality of service, SLAs, video quality or any of their other critical operational standards.

Other partners also exploiting, or planning to exploit, the technology include Broadpeak that is currently working on a nanoCaching solution. Civolution, which is also collaborating with Thomson on watermarking, began the commercialisation of cloud video detection services earlier in 2015 for live events while audio watermarking for second screen synchronisation was sold to Kantar Media in December 2014, which offers a further exploitation opportunity in turn. Others like

VTT (Finland) intend to use the service platform as an integration platform for other projects and AGMLab will exploit the ICARE technology to develop a context-aware recommendation system for B2B stakeholders of multi-media content distribution.

Massive business potential

"All these examples of exploitation are valuable also from a European point of view in the global market. We cannot afford to lag behind the United States," Eric warns. "Already European consumers are buying American products and services because they are so far ahead. So we really need to help drive the migration from the old to the new increasingly virtual industrial world. Software will become ubiquitous and offer citizens a plethora of services and solutions. Europe has to be at the forefront of this offer. My personal opinion is that entertainment is a valuable and necessary part of life – we need a break now and then from the harsh realities. However, from a business perspective entertainment is a good greenfield opportunity for cloud and software oriented technology and services. Not only at home, in parks, in theatres but also in the gaming industry, whether leisure or serious gaming – if you take all of this into consideration then the need for the ICARE technology multiplies by ten or even a hundred. The entertainment industry is a massive business."

Software and software systems are the lifeblood of co-innovation

A Canadian viewpoint

Randy Zadra

As senior advisor at the National Research Council of Canada (NRC) (Canada's "go to" research and technology organisation), Randy Zadra bears witness to a growing industry-driven interest in pursuing co-innovation through strategic international partnerships. He is able to respond to this interest as part of his role facilitating co-innovation projects in EUREKA Clusters and advising on developing international market-based R&D projects.

Zadra works closely with Patrick Sheedy, an industrial technology advisor with NRC's Industrial Research Assistance Programme (NRC-IRAP). Sheedy provides advice, linkages and funding recommendations for small and medium-sized enterprises (SMEs).

EUREKA has opened the doors to dozens of exciting projects since Canada joined as an associate member in 2012. As Zadra explains: "EUREKA's collaborative model gives Canadian companies a chance to contribute their expertise, while opening doors to specialised knowledge, technology, facilities and markets. EUREKA partnerships also help to de-risk the R&D activities of SMEs, setting the stage for co-innovation

aimed at new products, processes and services." It's a concept he champions.

No borders
 "When I worked at the MIT Media Lab in Boston, where more than 100 global companies worked hand-in-hand with innovative start-ups and researchers, co-innovation was well-embedded. It's something I strongly believe in," Zadra points out.

The complexity and speed at which new products and services are being introduced is such that companies, including large multinationals, cannot proceed alone. Business and industry practices have been turned on their heads by the Internet, which now permeates our lives, transcending every business sector, from aerospace to health and education. "It's a global transformation; there are no borders to the use of IT," Zadra adds.

It is within this context that Zadra believes co-innovation is so important. He explains that the capacity required to develop new products and services has become a function of multiple disciplines working together. "If you are trying, for example, to develop an intelligent transportation system, you would need people who understand logistics and automotive design. But you would also need software engineers."

Traditional industries are increasingly being reinvented by the mobile Internet and the latest software advances. The healthcare sector, for example, is undergoing massive changes due to the merging of data analytics with traditional medical diagnosis. As Zadra points out, co-innovation now often occurs when the approach taken transcends specific sectors and systems."

Unique platform
Zadra sees plenty of potential for co-innovation between Canada and Europe. He adds that

Canada's National Office for EUREKA is housed and managed by the National Research Council of Canada (NRC). Here, companies, and organisations are provided with a first point of contact for EUREKA's network. Through its Industrial Research Assistance Programme (NRC-IRAP) NRC also provides eligible SMEs with funding for approved projects.

"Canada's strong and diversified IT industry is a good fit for European companies interested in improving the IT side of their products or services, whether they consist of healthcare products or collision avoidance systems."

Sheedy, who has a decade of experience with NRC-IRAP, recognises ITEA 3's capabilities. "EUREKA gives companies and organisations the chance to develop 'close-to-the-market' solutions," he says. "Therein lies the network's real strength and the value of this cluster."

"Everyone involved in multi-disciplinary projects has something to gain because the outcome of such partnerships is greater than the sum of its parts. It allows companies to become more competitive, to gauge and benchmark market developments and to validate their own technology", adds Sheedy.

Aligned approaches
Software and software systems are the lifeblood of co-innovation because they flow across every sector, industrial or non-industrial. From a Canadian perspective, the EUREKA approach is perfectly tailored for interactions that will lead to innovative, industry-driven initiatives.

ITEA 3 has provided tremendous value for Canada, which has niche capabilities and recognised players in this sector. Both advisors agree that ITEA 3 projects will increasingly figure within the Canadian R&D landscape by opening the door to significant opportunities.

NRC sees ITEA 3 as a springboard, part of delivering on Canada's renewed 3-year commitment to EUREKA. Zadra says: "We're eager to facilitate more high quality projects with impact for our companies and recognise ITEA 3 as one of the most promising Clusters through which to reach this objective."

Canada's ICT sector – at a glance*

- An estimated 37,000 companies make up Canada's ICT sector.
- Of these, 87.6% are in the software and computer services industries and 5.6% are in wholesaling.
- In 2013, the sector counted about 80 companies with 500+ employees, with 86.0% of all remaining companies employing less than 10 people.
- Manufacturing stands out as the subsector with larger companies. In 2013, 14.1% of the manufacturing companies had 50+ employees.
- ICT generated $159.9 billion in revenues for Canada in 2014.
- ICT sector revenues (which grew by almost 20% from 2007 to 2013), increased by another 2.7% by the end of 2013, led by the software and computer services sub sector (5.6%), followed by the wholesaling and communications services sub-sectors (2.9% and 2.6%).
- The ICT Sector makes a substantial contribution to the Canadian GDP and is a major source of knowledge-intensive jobs.
- ICT industries are the largest performers of private sector R&D in Canada, with expenditures totalling $5.0 billion in 2013.
- ICT manufacturing industries are export-oriented. About 81% of ICT products manufactured in Canada were exported in 2013.

Information drawn from Canadian ICT Sector Profile, by Industry Canada.

State-of-the-Art on 'Affective Technology': a joke or the first step to reality?

By Philippe Letellier

The ITEA 2 Empathic project delivers a State-of-the-Art (SotA) on 'Affective technology': a joke or the first step to reality?

Affective is still associated in our brain with humanity and far away from the digital product. I would even say it is easy in our daily lives to show "A-affective technology" when very clearly the product doesn't care about the user, show all its internal complexity and let the user manage with that to get the promised service.

So why such a SotA on 'Affective Technology'? This SotA is very important for its quality and also because we must recognise the digital transition community is not yet focused on the user-centric paradigm that takes into account some dimension of 'affective technology'. It can become an actual differentiator in the market as this SotA demonstrates that "affective technology" is no mere pure fiction but is

already mature for some functionalities at least. This SotA provides a broad and detailed view of all kinds of affective technologies (sensing technologies, data fusion and behaviour modelling (including EmotionML)). Sensing technologies encompass sensors (cameras, audio, touch, bio-signals…) and various kinds of analysers: face, gesture, speech, text…). The large number of technologies described in the document, the quality of the information provided on these technologies and the more than 330 publications referenced in the document are really impressive. The document is a really valuable tool for those that would like to get into affective technologies.

For the sake of our community I invite you to be curious and take a look at this excellent document:
https://itea3.org/project/empathic.html

Smart Cities – a world of opportunities

Results from the International customer & end-user workshop

The ITEA Cluster is well known for its regular impact on the market; I should say it is actually the ITEA signature in the landscape of R&D funding programmes. ITEA has now been a global programme for a long time involving partners from Korea, China, Egypt, Canada, … Furthermore, we have observed that many of our success stories have been built in close contact with customers and end-users from the beginning. To strengthen this ITEA characteristic even more, our Board decided to create the international customer and end-user workshops.

The aim of these new workshops is to clarify the needs of international customers and end users, and to build our future ITEA proposals from these actual urgent demands so that they are even more aligned with the market. These workshops are by invitation with a rather small number of people to ensure close contact and efficiency between customers and industrials to share what is urgent and what actually deserves an R&D project. Nevertheless, the results of these workshops are public to allow any company to benefit from this understanding and to participate in or even lead an ITEA proposal based on these user demands.

In these future proposals we welcome the participation of customers and end-users to set the specification of work packages, test the solution and fast exploitation through rapid deployment.

The theme of the first workshop was 'Smart cities'. Amsterdam, Istanbul and Vancouver accepted participation and we received contributions from Bandung, Nairobi and Rennes. Lyon, Nice, Paris, Santiago de Chile and Seoul are willing to follow up the results. The industrials present were Alliander, EnerjiSA, Ericsson, Gemalto, Indra, Philips, Siemens, Thales, Turkcell, together with a set of innovative SMEs; Arvento, Asay, Deveryware, Elektronet, ESRI, ISBAK, Libelium and Mobilera. Moreover, the Dutch, Swedish and Turkish public authorities also supported us during this workshop.

The most urgent needs arising from the discussion with the different cities were:

1. E-Democracy and networked cities
- Municipalities are requiring more and more tools to ensure their citizens trust and engage them in the decision process. It means tools for visualisation, simulation social network.
- People will also be a part of the Internet of Everything (IoE), be it with wearable technology or with social conversations.
- Do-It-Yourself initiative: the citizen generate their own service from the open data.

2. Disaster/Crisis Management
Our society is becoming increasingly urban and more and more sensitive to many kinds of crises.
- This requires: crowd/sensing capabilities, communications that assume the unavailability of traditional means of communication, Big Heterogeneous Data analytics.
- Mainstreaming climate change, how to prevent & react using the Smart Cities tools (›$25 billion worth of real estate is at risk from sea level rise in Vancouver).

3. Green City & Renewable energy
- Green city is a major trend, for example Vancouver's willingness to: double the number of green jobs by 2020, reduce community-based greenhouse gas emissions by 33%, make the majority of trips (over 50%) on foot, by bicycle and public transport, reduce Vancouver's ecological footprint by 33%.

- Solar energy, energy management and energy storage.

4. Housing and Homelessness
- There is a danger of the middle class being driven out of the city and the effect that would have on the economy.
- There is a willingness to support a better quality of life for the homeless.

5. Privacy & Security
- The meaning of Privacy needs a contemporary review. Privacy is the default. Everybody has the right to his/her privacy unless security or safety is at risk. Ownership of data must be simplified and transparent.
- Digital Security will be one of the biggest challenges of this century. Design of essential infrastructures should be as resilient as possible.

6. Tsunami of Data
- The digital city will generate a tsunami of data that has to be managed.

- Unified data model to break down the silo barriers or data model automatic translation through semantic to be independent of the silos. City's role as a data aggregator. Ownership of data.

7. Business models & Life Cycle Cost Analysis
- The Digital revolution comes with new business models.
- For each case a Life Cycle Cost Analysis is required and can be a methodology of tools for smart city deployment.

As a synoptic of the cities and industrials discussions, a first list of urgent topics to work on is:
- **Visualisation, Simulation, Communication platform:** It includes City 3D modelling, Big Data, virtual reality, social networking, tools to create the citizen empowerment on the city projects.
- **Green multimodality mobility infrastructure:** It includes E-Charging, services based on mobility data (big data), new business model.

- **Energy consumption optimisation:** At home, in the office.
- **Smart lighting:** For energy consumption reduction and quality of life.
- **Multi-functionalities interoperability platform**
  - A key demand is interoperability when the organisations remain silo-based.
  - Such a platform will include system of system, overcome the silo effect (use of semantic layer), modelisation, efficient data analytics, ownership of data, legacy management, security, crowd sourcing, scalability, standardisation, new business model.

The quality of the job done during this workshop will ensure that we now have the right input to set up ITEA proposals on Smart City with high potential. We forecast several proposals in ITEA 2 Call 3!

Calendar

28 October 2015
CELTIC-PLUS PROPOSERS DAY
Antwerp, Belgium
🌐 www.celticplus.eu

30 October 2015
DEADLINE ITEA 3 CALL 2 PO SUBMISSION

(Submitted by ITEA 2 project AMALTHEA4public)
3-5 November 2015
ECLIPSECON EUROPE 2015
Ludwigsburg, Germany
🌐 www.eclipsecon.org/europe2015/session/
    app4mc-support-embedded-multicore

17-19 November 2015
Smart City Expo World Congress - SCEWC 2105
Barcelona, Spain
🌐 www.smartcityexpo.com/fr/the-event

19 November 2015
SWISS INNOVATION FORUM
Basel, Switzerland
🌐 www.en.swiss-innovation.com

(Submitted by ITEA 2 project AMALTHEA4public)
30 November - 4 December 2015
**EMBEDDED SOFTWARE ENGINEERING
KONGRESS**
Sindelfingen, Germany
🌐 www.ese-kongress.de/paper/presentation/
    id/99
    www.ese-kongress.de/paper/presentation/
    id/56

1-2 December 2015
EUROPEAN NANOELECTRONICS FORUM 2015
Berlin, Germany
🌐 www.nanoelectronicsforum.org

7-10 December 2015
EUROPEAN INNOVATION SUMMIT
Brussels, Belgium
🌐 www.knowledge4innovation.eu

10 December 2015
FPP BRIEFING DAY
Brussels, Belgium

27-29 January 2016
**ERTS 2016 - EMBEDDED REAL TIME SOFTWARE
AND SYSTEMS**
Toulouse, France
🌐 www.erts2016.org

9 February 2016
DEADLINE ITEA 3 CALL 2 FPP SUBMISSION

SAVE THE DATE

26-29 April 2016
ITEA EVENT 2016
PART OF THE EUREKA INNOVATION WEEK

26-4: Global Collaboration Day
       Canada, South Africa, South Korea

27-4: Innovation Event "Smart Cities
       – Sustainable & Attractive
       Communities"
       Keynote speakers, innovation
       award, thematic parallel sessions,
       exhibition (incl. ITEA booths)

28-4: ITEA Event
       More information will follow soon

Stockholm, Sweden
🌐 www.vinnova.se

EUREKA present at the EU-Indian Trade and Investment Partnership Summit 2015

New EUREKA electronics Cluster PENTA launches in 2016

At the invitation of the Europe India Chamber of Commerce, EUREKA representatives took part in the EU-Indian Trade and Investment Partnership Summit 2015, on 30 September 2015 at the European Parliament in Brussels. Promoting EUREKA as a platform for global industrial R&D&I collaboration is one of its key strategic objectives for 2020.

The 'business sessions' of the Summit were opened by ITEA Office Director Fopke Klok presenting EUREKA, its Clusters, success stories and the EUREKA's Smart City initiative, of key interest to India. India decided to develop 98 'smart cities' across the country at a cost of one trillion dollars and with the aim of creating urban spaces where green, high-tech initiatives bring more efficient management of resources, including water and energy, and better services to citizens.

Source: EUREKA Network – www.eurekanetwork.org

During the latest EUREKA Network meetings in Lugano, Switzerland, a new EUREKA Cluster, PENTA, was labelled by the EUREKA High Level Group representing research ministries and innovation agencies across Europe. It will launch a first call for projects early 2016.

PENTA stands for Pan European partnership in micro and Nano-Technologies and Applications. Like other EUREKA Clusters it builds on strong support from major industry players: founding partners include companies such as Airbus and Audi, and members of the 'Electronic Leaders Group', Infineon, Globalfoundries, NXP, Fraunhofer, ASML, SOITEC and IMEC. The Cluster will put a special emphasis on the inclusion of SMEs in the research projects it will generate.

PENTA builds on past EUREKA initiatives in microelectronics JESSI, MEDEA, MEDEA+ and CATRENE, and similarly aims to maintain European leadership in electronic applications market segments such as health, automotive, industrial automation, security and energy.

The Electric Leaders Group roadmap, published in 2014, provides the basis for PENTA's strategy. Presented as a complementary instrument to the ECSEL Joint Undertaking, launched by the European Union, PENTA will differentiate itself by a focus on smaller projects, its ability to set up projects quickly and by its bottom-up approach, characteristic of the EUREKA initiative. This will provide the industry with opportunities to take advantage of rapidly developing new markets.

Source: EUREKA Network – www.eurekanetwork.org

South Africa sees great benefits in association with EUREKA

The South African Department of Science and Technology recently presented the results of its first year as a EUREKA Associated Country.

EUREKA has greatly contributed to establishing South Africa as a preferred destination for international S&T investment and cooperation, according to delegates from the Department. South Africa's EUREKA Associated Country status also helped local innovative companies and universities to internationalise their approach to research and development, strengthening existing partnerships with EUREKA member countries even "beyond what is offered under existing bilateral STI agreements", said a representative from the Department.

Since South Africa joined EUREKA in 2014, a EUREKA seed funding instrument aimed at supporting the country's researchers in their participation in EUREKA projects has been successfully put into place. So far six projects including South African partners have been submitted, half of which have been approved for EUREKA label, while the approval of the three other ones is in progress.

Source: EUREKA Network – www.eurekanetwork.org

CATRENE		1-2 December	European Nanoelectronics Forum 2015	Berlin, Germany	www.catrene.org
Celtic-Plus		28 October	Celtic-Plus Proposers Day	Antwerp, Belgium	www.celticplus.eu
EURIPIDES²		24 November	Submission deadline - Full Project Proposals Autumn Call 2015		www.euripides-eureka.eu
EUROGIA2020		20 November	EUROGIA2020 Call 05 Cutt-Off Date		www.eurogia.com

Colophon