CO-SUMMIT 2015

Berlin Congress Center, Germany
10-11 March 2015

The seventh and final instalment of the Co-summit was held in the heart of European industrial powerhouse Germany's capital city on 10-11 March 2015. With fascinating ARTEMIS and ITEA projects showcased and high-level speakers and guests in attendance, the conference highlighted Europe's edge in smart industry and discussed how to capitalise on this advantage

WITH THE THEME 'Smart Industry: Impact of Software Innovation', Co-summit 2015 – supported by the German Federal Ministry of Education and Research, Daimler and Siemens – centred on the revolutionary ideas and exciting innovations Europe is generating towards a future in which manufacturing will be central to the success of the continent. Germany was the perfect place to host such a conference, not only due to its current impressive industrial credentials, but also because the country is a thought leader in the field of industrial innovation.

The term 'Industrie 4.0' was first proposed at the Hannover Fair in 2011 as the result of deliberations between members of a German Government hi-tech strategy working group aiming to promote the digitalisation of the manufacturing industry. Smart industry and Industrie 4.0 can be used interchangeably to refer to what many are now predicting will be the fourth industrial revolution. After the mechanisation of production using water and steam power, the introduction of mass manufacturing with electrification and the more recent digital revolution, the fourth industrial revolution is seen as the merging of the real and virtual worlds, using cyber-physical systems, software innovation and the Internet of Things to further automate production and optimise systems, technical processes and workflows for both economic and environmental gain.

ABOUT THE ORGANISERS

Co-summit co-organisers ITEA and the ARTEMIS Industry Association (ARTEMIS-IA) are two key organisations driving Europe towards this fourth industrial revolution. Both provide support to R&D&I projects through the provision of innovation ecosystems in which large industry, SMEs, universities, research institutes and user organisations can interact.

ITEA is the EUREKA Cluster programme supporting innovative, industry-driven, pre-competitive R&D projects in the area of Software-intensive Systems & Services (SiSS). More generally, EUREKA is an intergovernmental organisation for market-driven industrial R&D. A decentralised network, EUREKA facilitates the coordination of national funding on innovation with the aim of boosting the productivity and competitiveness of European industries. Within EUREKA, EUREKA Clusters are long-term, strategically significant public-private partnerships. Most of Europe's leading companies participate in EUREKA Clusters, developing generic technologies of key importance to European competitiveness. Currently in its third iteration, ITEA 3 will run from 2014-21 and aims to secure and enhance the position of European industry in SiSS using its €3 billion budget and 17 years of experience in this arena.

ARTEMIS-IA has its roots as the European Technology Platform on Embedded and Cyber-Physical Systems (ARTEMIS ETP). In 2007, the ETP was converted into an Industry Association with paying members, a chosen Steering Board and a General Assembly. ARTEMIS-IA worked in conjunction with ARTEMIS Joint Undertaking (ARTEMIS-JU) in providing support to innovative projects in the cyber-physical systems domain. ARTEMIS-JU issued six calls for proposals, providing €1.1 billion of eligible cost for projects in 2008-13. Today, ARTEMIS-IA represents its members – industry, SMEs, universities and research institutes – in the Electronic Components and Systems for European Leadership Joint Undertaking (ECSEL-JU) and also continues its role as ETP, focusing on roadmapping and also networking with other related platforms. ECSEL-JU merges the activities of ARTEMIS-JU, ENIAC-JU and the European Technology Platform on Smart Systems Integration (EPoSS).

HIVE OF ACTIVITY

Speeches

A range of speeches, discussions and demonstrations over the course of the two-day event offered a compelling case for the impact ITEA and ARTEMIS projects are having on the creation of industrial innovations. Dr-Ing Herbert Zeisel from the German Federal Ministry of Education and Research kicked off proceedings with his welcome speech in which he underlined how important smart industry innovation is to Germany's continued success: "Smart industry is the hot topic in Germany today, so Berlin couldn't be a better choice for this Co-summit". Next Khalil Rouhana, Director for Components and Systems in DG CONNECT, gave an impassioned speech about the need for a digital single market and smart industry in Europe: "Our challenge: develop a common strategy for software with complementary implementation mechanisms. Let's just do it!" Later, in her keynote address Dr Jutta Schneider, Director of eDrive & Software Technologies for Daimler, offered her take on the challenges posed by today's software innovation landscape. Providing a vivid example of the complexity of modern software applications, Schneider explained that if the code behind the software in a 1995 S-Class Mercedes was written down on paper and stacked up it would reach 3 m. The equivalent 2020 S-Class' code would be the height of the world's tallest building, the Burj Khalifa – 829 m.

Panel sessions

This astounding growth is indicative of the increasing complexity those attempting to innovate in smart industry are having to grapple with. But complexity is an area in which Europe excels – a sentiment echoed in the panel sessions held on the second day of Co-summit 2015. "With systems knowledge, I think that Europe stands very strong," enthused Kees van der Klauw, Senior Vice President of Philips Research. "But in terms of entrepreneurial speed, we have to improve." Christian Hahner from Daimler agreed: "What the US does better is transferring their ideas to market. We should concentrate on where our strengths lie, which is in mastering complexity".

What Europe needs to do beyond R&D&I was also a hot topic during these sessions. TNO's Egbert-Jan Sol suggested there are other important elements to the process revolutionising industry: "It is not simply software innovation but also business innovation and social innovation". Importantly, Thomas Lagerberg of ABB posed the question: "We have all these big data and connectivity but it is important to ask what's in it for me, how can I make money out of it? We have to demonstrate the benefits to people".

Speakers corners

In a more intimate setting in the basement of the congress centre, speakers corners offered specific insights into smart industry trends and challenges, as well as a forum to debate topical issues. Presentations ranged from the future of automated driving with a focus on secure connectivity and the enabling role of cyber-physical systems to the internationalisation of European funding programmes, particularly in regard to ITEA. Key debates included how an industrial internet and future automation systems will impact industry and whether mHealth solutions can improve patients' autonomy and quality of life through greater self-management.

International Innovation's Ben Skuse also presented a session targeted at early-career researchers and new ITEA and ARTEMIS-IA projects, offering advice on how to use SEO, new media and alternative dissemination resources to improve the discoverability and impact of their research.

Exhibition

Complementing the smart industry-focused discussions in the panel sessions and speakers corners was an exhibition displaying the impacts from some of the most cutting-edge ITEA, ARTEMIS-IA and other European projects in the field. In total, 91 projects were on show. Of particular note was Daimler's booth, which featured a preview of the new S-Class' innovative safety, assistance and lighting systems through its 'Moving Base' driving simulator – offering a real taste of what the new car is capable of and also highlighting the ever greater role of simulation in systems development. Further to this, Daimler brought along their latest B-Class electric vehicle for conference attendees to test drive on the streets of Berlin.

Other highlights from the floor included Exhibition Award winners R5-COP, who brought along an autonomous robot – designed for menial, dirty and dangerous jobs – which wandered around the exhibition floor whilst playing Kraftwerk, and the BaaS project, whose representatives wore hard hats and hazard warning vests to draw attention to the use of novel value-added services and applications for smart commercial buildings.

ARTEMIS-IA, ITEA AND ECSEL

ARTEMIS-IA: speedy impact

During the Co-summit media event, Heinrich Daembkes, President of ARTEMIS-IA, revealed how ARTEMIS projects are having real-world impact on the creation of new jobs for Europe

ARTEMIS-IA is a European R&D Industry Association for all activities in the domain of embedded and cyber-physical systems. We are building bridges and links to other entities active in this field. We believe that Europe is not currently sufficiently focused on driving this important digital technology for further exploitation. So in order to improve this situation, several actions need to be taken. We are requesting that overall spending is doubled for the domain. I was very encouraged to hear that the EC appears willing to do this. If it does happen, I am sure it will be effective in the creations of more than 150,000 new jobs.

All areas are becoming influenced by, assisted and ever more dominated by smart systems. But what ITEA and ARTEMIS-IA are doing is focusing on those areas in which Europe is still in a leading-edge position. We have industries in which we are really prospering and at the forefront worldwide. This new technology of embedded systems offers a tremendous amount of opportunities to the economy if we take them. But to be able to take them, we also need to know how to take them. ARTEMIS-IA is one of the communities pushing such activities. ARTEMIS-IA covers the entire smart community – smart mobility, smart energy, smart manufacturing, smart industry, smart cities and society, and also smart health. But we are also doing more than that: through our roadmapping activities and exchange with experts we are identifying areas in which there are gaps and how to close them.

We are also measuring whether we are doing the right things in the right way. Five or six years ago we established a working group on metrics. This group measures what we are doing and what the results are. They have now provided the third instalment of our *Business Impact and Metrics* series which addresses far more than 1,000 partners, asking them a lot of detailed questions. One of the most important questions is: what will be the impact of the project and when should we expect this impact to happen? The latest answers indicate an interesting change. A few years ago, the impact was expected to occur some way into the future, five years perhaps. Now, more and more partners are expecting to be able to use their results within one year of the project's end. This is exactly what we want to see.

https://artemis-ia.eu/

ITEA: Seizing the high ground

In a short break away from the activities at the Co-summit, *International Innovation* spoke to Rudolf Haggenmüller, Chairman of the ITEA Board, about progress in ITEA since our last interview in 2013

Have you seen significant activity towards the Vision 2030 aims since we last spoke at Co-summit 2013?

We have created customer and end-user workshops, and have clearly addressed the need for us to become more global. ITEA has worked very closely with teams from Mexico, Canada and South Africa to make this happen, and we now also have established contacts with other Latin American countries like Costa Rica and Uruguay.

The market for nearly all our partner companies is global. They are exporting all over the world so they have to ensure their products are ready for this global market, and it makes a lot of sense to work in a more global context.

Could you give an insight into one of these international ITEA projects?

Medolution is a project with a focus on medical imaging, with Philips as the major partner. This project is about combining medical images with big data coming from patients over the course of months and years. This health information is fed in before patients get seriously ill. So the expectation is that doctors will have a basis which grows over the years for their diagnoses. For this project, Philips invited a Canadian partner to join with expertise in big data for health. This is a new domain for Philips, but with a large potential global market.

Do you see there being a tightrope to walk in terms of collaborating and, at the same time, protecting intellectual property (IP)?

Yes, but in all projects we have a standardised proposal for how to deal with IP. This has to be clarified at the outset as these projects equate to real business impact, so everybody needs to make sure that their own business is protected. But the companies involved in ITEA projects know how to cooperate.

I am often asked, what is innovation? Innovation is the art of making money. Research takes money and develops an idea, innovation takes the idea and makes money out of it. These companies understand this philosophy.

After 17 years of existence, is there still room for ITEA to improve its support for innovative, industry-driven, pre-competitive R&D projects?

The structural involvement of customers and end-users – not by accident, but by design – is key and something we are aiming to embed in our projects. If you have the customers/end-users involved from the beginning, then you have the market inside the project.

How can the next generation of European scientists and engineers be better prepared for the software-orientated, smart systems-filled world of tomorrow?

I think we have to find ways to introduce education as a part of our innovation projects. There must be a component dedicated to talent development in both countries and companies. In the field of smart industry, it makes no sense that we are developing very advanced industrial test automation but not necessarily developing the right talents – we need to develop the tools alongside the expertise needed to use them.

How important is the Co-summit to ITEA's endeavours?

This is our power show, where we can demonstrate to public authorities and others the impact of our projects. It's a lot of work for us and the project representatives, but this is the place where we can show our results and come together, in order to educate the ITEA community.

https://itea3.org/

AIMS OF ECSEL

- Contribute to the development of a strong and globally competitive electronics components and systems industry in the EU
- Ensure the availability of electronic components and systems for key markets and for addressing societal challenges, keeping Europe at the forefront of technology development, bridging the gap between research and exploitation, strengthening innovation capabilities, and creating economic and employment growth in the Union
- Align strategies with Member States to attract private investment
- Maintain and grow semiconductor and smart system manufacturing capability in Europe
- Secure and strengthen a commanding position in design and systems engineering
- Provide access for all stakeholders to a world-class infrastructure for design and manufacturing
- Build a dynamic ecosystem involving SMEs, strengthening existing clusters and creating new ones

www.ecsel.eu

ECSEL UPDATE

During his speech at Co-summit 2015, ECSEL-JU Executive Director Andreas Wild delivered an update on the activities of the young public-private partnership that aims to keep Europe at the forefront of technology development in nanoelectronics, embedded software and smart systems integration

"The organisation started existing on 27 June 2014 [...]. What we have done since June has been to my mind quite remarkable and something that would never have been possible without the constructive, mindful, thorough contributions from our constituents – our industrial associations, private members, also from the public authorities, and last but not least from the European Commission. [...] We have to realise that, within six months from July to the end of the year, we have brought everybody together, agreed upon constituents, agreed upon funding, selected a process for the projects, and actually put €300 million at the end of the year as grants – both national and European – into this industry. [...]

We have run two calls in parallel; one for Research and Innovation Actions and the other for Innovation Actions. As expected, the Innovation Actions are generally larger because they are closer to the economic valorisation of the results and that's where most of the investments from the industry happen. [...] Altogether we had 48 projects submitted and we selected 12 for funding. That is a success rate of 25 per cent. [...] As compared to other European funding mechanisms, it's not a bad success rate. We hope in the future to keep the same rate.

Looking at the topics addressed by the projects selected for funding [...] we see that all four technology areas [process technologies, design technologies, cyber-physical systems and smart systems integration] have been relatively well represented [...] with more than 80 per cent of applicants in these four areas. [...]

To read the 2015 Co-summit event preview, featuring exclusive interviews with Rudolf Haggenmüller and Heinrich Daembkes, please visit:

www.internationalinnovation.com/co-summit-2015

To read the 2013 Co-summit event report, also featuring exclusive interviews with Rudolf Haggenmüller and Heinrich Daembkes, please visit:

www.internationalinnovation.com/co-summit-2013

SUPER SIX

International Innovation spoke to six project representatives at the event to delve a little deeper into the innovations ARTEMIS and ITEA are supporting

ARTEMIS PROJECTS

ARROWHEAD
The vision of Arrowhead is to enable collaborative automation through the Arrowhead Framework, fostering interoperability at device service level. The Arrowhead Framework is applied to multiple application areas within smart production, smart buildings, smart energy and electromobility – all in response to EU societal challenges.

Partners: 78

Duration: March 2013-March 2017

Investment: €67.7 million

Read more: www.arrowhead.eu

See and hear more:
http://bit.ly/Arrowhead_JerkerDelsing

EMC²
This project finds solutions for dynamic adaptability in open systems. It provides handling of mixed criticality multi-core applications in real-time conditions, with scalability and flexibility, full-scale deployment and management of integrated tool chains, through the entire lifecycle.

Partners: 100

Duration: April 2014-April 2017

Investment: €93.9 million

Read more: www.artemis-emc2.eu

See and hear more:
http://bit.ly/EMC2_WernerWeber

R5-COP
With a focus on agile manufacturing paradigms and specifically on modular robotic systems, R5-COP supports model-based design, engineering, validation and fast commissioning using existing interface and middleware standards. The project will be a strong facilitator of the integration of components from various suppliers.

Partners: 30

Duration: February 2014-February 2017

Investment: €13 million

Read more: www.r5-cop.eu

See and hear more:
http://bit.ly/R5-COP_ThomasAlmdal

ITEA PROJECTS

EASI-CLOUDS
Addressing the challenge of delivering on-demand services on top of any public or private cloud, EASI-CLOUDS delivers custom service-level agreements, automated provisioning and adaptation of virtual resources, as well as customised real-time billing. Its technology can be used to build a variety of business models, including cloud brokerage and federation.

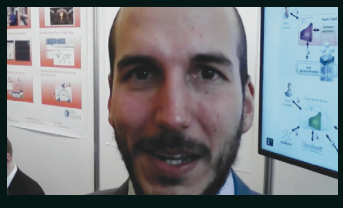
Partners: 30

Duration: September 2011-March 2015

Investment: €23.1 million

Read more: www.easi-clouds.eu

See and hear more:
http://bit.ly/EASI-CLOUDS_MarioLopez



MEDIATE
The aim of this project was to support healthcare professionals in the transition from invasive, open surgery to minimally invasive, image-guided intervention and treatment through the full integration of all medical imaging sources and therapeutic devices into an interventional workflow including optimised user interfaces and decision support.

Partners: 27

Duration: September 2010-December 2013

Investment: €43.6 million

Read more: www.mediate-project.com

See and hear more:
http://bit.ly/MEDIATE_HermanStegehuis

SAFE
The SAFE project speeds up the efficient development of safety features in cars. The objective is to enhance, and make interoperable, methods for defining safety goals and define development processes complying with the new ISO26262 standard for functional safety in automotive electrical and electronic systems.

Partners: 18

Duration: July 2011-December 2014

Investment: €11.1 million

Read more: www.safe-project.eu

See and hear more:
http://bit.ly/SAFE_StefanVoget

TOP TWEETS

ITEA 3 @ITEA_3
Dr. Zeisel, BMBF: "Smart industry is the hot topic in Germany today so Berlin couldn't be a better choice for this **#Cosummit2015**."

Ben Skuse @ResearchMediaBS
@KhalilRouhana : Europe's strength is in engineering complex systems. We cannot miss this opportunity. **#Cosummit2015**

ITEA 3 @ITEA_3
Andreas Gut, EUREKA NPC Chairman: **"@ITEA_3** is the benchmark for **@EUREKA_NETWORK** when it comes to global cooperation" #**Cosummit2015**

Richard Foggie @foggie_esp
1995 S class had 3m of code in it. By 2020 it will be height of Khalifa Tower! 828m #**Cosummit2015 @ KTNUK_ESP @KTNUK**

Jennifer E. Decker @decker_je
Attending **#cosummit2015 @ITEA3** Canada glad to take part in EUREKA!

ARTEMIS @ARTEMIS_IA
#Cosummit2015. Theme session on smart industry, impact of software innovation. do we need evolution or revolution?

ITEA 3 @ITEA_3
C. Rossbach, Roland Berger: "3 keys for smart industry competitiveness in Europe: standardisation, financing & cooperation" **#Cosummit2015**

Tom R. @ruettet
almost everybody at the **#Cosummit2015** doesn't drink enough water! get your health profile at the **@WithMeProject** booth

Ben Skuse @ResearchMediaBS
AndreasWild **#Cosummit2015** talk: **@ECSEL_JU** aims to bridge valley of death, shore up innov capabilities and create jobs

Richard Foggie @foggie_esp
Kees van der Klauw, Philips talks sense on embedded/CPS. Innovation needs end users/UX. **#Cosummit2015 @KTNUK_ESP**

KEYNOTE IN CONVERSATION

Dr Jutta Schneider speaks exclusively to *International Innovation* about two key interlinked technologies set to transform the automotive industry: electric vehicles and software innovation

To begin, can you explain what eDrive means? How do eDrive systems maximise electric motor performance?

eDrive is our approach to electromobility; it means full or partial emission-free driving. The system consists of an electric engine, control units, wiring, CPUs and the battery – all high voltage. We are working on two areas to improve efficiency, but the current systems are already comparable in efficiency to hybrid systems on the market. There is a price target that we need to meet in order to have a mass market for electric vehicles. The whole industry needs to work on high voltage, well integrated systems with lots of features to get the price down.

What is holding back electric vehicles from dominating the automotive market, and how is Daimler working to transition to an electric future for transport?

There are different perspectives within different markets. In California in the US there are carpooling and emission incentives, and China, Norway and the UK, for example, have strong incentives driving the market for hybrid and electric vehicles. These are massive enticements to overcome obstacles and preconceptions and allow electric vehicles to break through. Expectations within society regarding electric vehicles are not from experience but from reading material in the press. What we need to get from that sector is more people driving these vehicles. When you experience electric driving you realise it's really good and fun.

As I mentioned, another factor is price. Pricing needs to be appealing. There are subsidies being introduced in some countries to bring about the first wave, but pricing needs to be competitive in the long term.

Could you offer an overview of your role as Director of eDrive & Software Technologies?

I'm in charge of method development in software technologies, meaning specification and test methodology, R&D tool chain questions for software technologies, and eDrive train projects for electric vehicles, including high voltage batteries.

Are there any recent innovations from the eDrive and Software Technology team that you are particularly proud of?

Regarding eDrive, we launched the battery-electric B-Class Electric Drive which is parked outside the conference centre and that was developed by my team. On the software side, we have really good representation here at the Co-summit, with booths for two very important projects – CRYSTAL and MBAT. I am really proud of my team for being part of this international community with a European spirit of improving technologies. These two projects have different foci, but both are international with a European view and both are making progress in terms of value chains; connecting tools and overall methodology to address software complexity.

We are involved in many ITEA and ARTEMIS projects. I think all of these projects are making a great contribution, in part because they are so large in terms of how many parties are involved. I appreciate this holistic view, incorporating different members with different knowledge, but all working together on one project.

You are also on the advisory board of the Daimler Center for Automotive Information Technology Innovations (DCAITI), which specialises in future scenarios in automotive electronics. Have there been any exciting DCAITI projects conducted recently you would care to mention?

I am proud of DCAITI because it conducts practical research. What I mean by that is that it's real research with a university approach, but we can use it directly for our development processes. Due to the excellent collaborations we have with the people at the university and those at this institute, we obtain very good and speedy results.

An institute created in 2005 jointly by Daimler AG and the Technische Universität Berlin, DCAITI provides a framework for academic-industry collaboration. Do you feel this is the future of automobile R&D?

It's one approach, but I am really convinced that these European multi-party projects – such as those supported by ITEA and ARTEMIS – which create a setting to involve industry, middleware companies, tool enterprises and universities, are a great way to make progress.

www.mbrdna.com/divisions/powertrain-edrive

KEYNOTE HIGHLIGHTS

In her keynote address – Software-innovations as key driver for a green, connected and autonomous mobility – Dr Jutta Schneider emphasised the ever-growing importance of embedded digital technology to growth and jobs in Europe, as well as the increasing role of software in automotive innovation; Schneider stated that 90 per cent of electric and electronic innovations nowadays are powered by software. She then described how the seven ITEA and ARTEMIS projects present at the conference in which Daimler plays a leading role are accelerating change towards a smart automotive industry through software innovation.

To download the slides from the presentation, please visit: https://artemis-ia.eu/co-summit-2015/presentations-4.html or https://itea3.org/co-summit-2015/presentations-1.html