ARTEMIS MAGAZINE

July 2017 | No 22

Sweden and the Digital Transformation

Digital Innovation Forum 2017

10 Year Anniversary ARTEMIS - A Fascinating Voyage

FOREWORD

Dear ARTEMIS friends,

In the foreword of the previous ARTEMIS MAGAZINE I already mentioned the ARTEMIS-IA birthday (Jan. 17, 2007).
This means that our association has now existed for 10 years. To celebrate this milestone, we invited our former presidents Yrjö Neuvo, Klaus Grimm and Heinrich Daembkes for a dinner with our Steering Board on 16 March. Earlier that day they were interviewed together, to look back on their presidencies and to give some outlooks to the future; you will find this combined interview in this magazine.

Each year we organise a couple of events to serve our members and guests with up-to-date information about embedded intelligent systems. During these events networking is of utmost importance. Networking provides the basis for building new project proposals with possible new partners, for the benefit of the project participants and for the benefit of Europe. The products and services we build today are so complicated that no company alone masters all the technologies and disciplines needed, so cooperation is key. Projects with a good mix of partners from large enterprises, RTOs and SMEs have proven to be the projects with the largest impact.

In this publication of our magazine you will find an extensive report and pictures of the Digital Innovation Forum 2017 (DIF2017) that we organised together with ITEA in May in Amsterdam, as a successor event of the previous Co-Summits. During the DIF we had a lively ARTEMIS panel on the digital transformation in Europe and the role that the various partners (can) play in it. The panellists came to the consensus that large-scale funded projects are an important vehicle to achieve the innovation, standardisation and solutions that are so essential to driving the digital transformation forward.

Also in this magazine you find reports of the first, and successful, ECSEL Symposium that was held in Malta in June, and of the yearly ARTEMIS Brokerage Event in January (this time in Brussels) for which we had an all-time high for the number of participants.

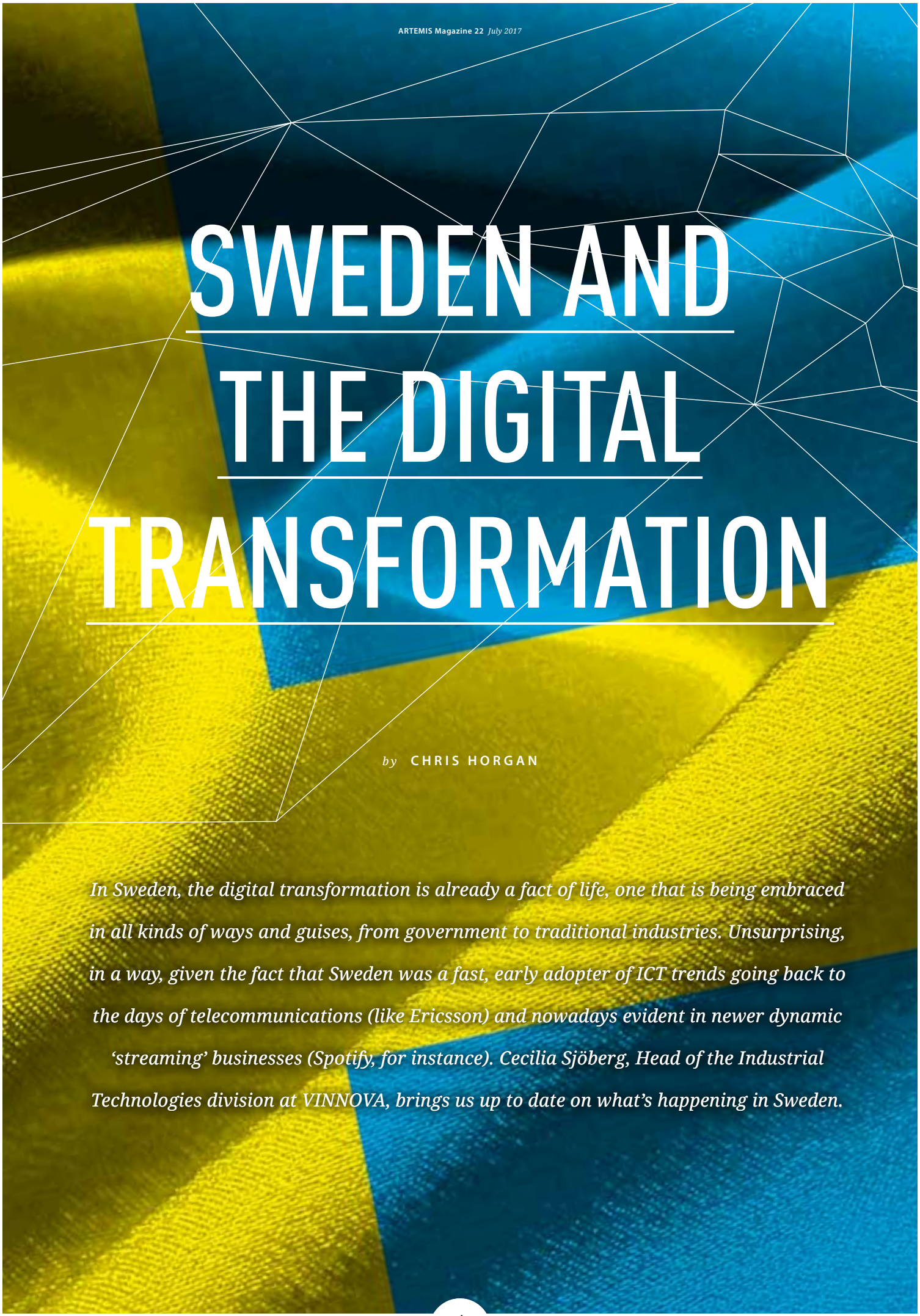
Our cooperation with our natural partner associations in ECSEL, AENEAS and EPoSS, is increasing. To demonstrate this cooperation to our members and the outside world we are co-organising a big event in December of this year in Brussels that goes by the name of EFECS (European Forum for Electronic Components and Systems). You will see it announced in this magazine.

Finally, you will find a report on the digital transformation in Sweden and reports on the projects EMC2, ENABLE-S3 and CP-SETIS.

I wish you an enjoyable read.

Jan Lohstroh
Secretary General of the Industry Association

CONTENT



SWEDEN AND THE DIGITAL TRANSFORMATION

by **CHRIS HORGAN**

In Sweden, the digital transformation is already a fact of life, one that is being embraced in all kinds of ways and guises, from government to traditional industries. Unsurprising, in a way, given the fact that Sweden was a fast, early adopter of ICT trends going back to the days of telecommunications (like Ericsson) and nowadays evident in newer dynamic 'streaming' businesses (Spotify, for instance). Cecilia Sjöberg, Head of the Industrial Technologies division at VINNOVA, brings us up to date on what's happening in Sweden.

DIGITAL FIRST

"Sweden is often highly ranked in many kinds of indicators of connectivity, human capital, use of internet and so on. From my point of view, there really is a great awareness here in Sweden of the power of transformation," Cecilia explains. "And there are plenty of government initiatives geared to speeding up the transformation in different sectors. Like digital skills, innovation and leadership as a kind of umbrella across the public and private domains. A specific initiative is 'Digital First' in which the government wants first contact with the citizen to be a digital one." Essentially, the aim is to simplify many of the complex processes. One example Cecilia cites is restaurants where the digital process both simplifies and accelerates the process of getting a permit to begin trading.

PARTNERSHIP PROGRAMMES

Sweden is implementing a Smart industry strategy for change and competitiveness along four key areas. "Firstly, Industry 4.0 is geared to enabling Swedish industry to become a leader in the digital transformation. Secondly, sustainable production, something that I believe goes hand in hand with digitalisation. Then we have the area of industrial skills. This is really vital since we have a shortage of digital skills – there is high demand but short supply. And the fourth area is what we call Testbed Sweden. For instance, creating digital twins for factories and the like where different solutions can be tested out." A year ago the Swedish government launched 'Partnership Programmes' in which three horizontal societal challenges (digitalisation, life sciences and environmental and climate technology) were identified and addressed by five partnership programmes (next generation travel and transport, smart cities, circular and bio-based economy, life sciences, and connected industry and smart materials). In her role at VINNOVA, Cecilia's focus on connected industry and smart materials, "trying to stimulate the broad adoption of digitalisation and mobilise new forms of collaboration between different actors. I think that awareness about this transformation is a key ingredient to being able to implement these strategies for change and competitiveness."

CROSS-DOMAIN COLLABORATION

"Stockholm is a bit of a hub for start-up in digital sectors like gaming and fintech but also in the uptake of e-services," Cecilia says. "Citizens are keen to use them where they see the benefits they can bring to their daily lives. On the other hand, we still lag behind our near neighbours Denmark and Estonia in the public sector. I would say that the industrial players are leading from the front – this is evident in projects like connected mining where you see interesting, new cross-domain collaboration between multinationals such as Boliden, Ericsson and ABB working together also with small companies and academia and creating new business models to find a common solution." Collaboration is another quality that is helping Sweden to transform. As Cecilia explains, "we don't have so many hierarchical layers and this enables competitors to more easily work together in projects where they share a common purpose. We would like to see more European programmes take the approach we introduced in 2011 in Sweden of challenge-driven innovation. Here the needs and challenges than the technology form the targets of projects on which consortiums work together on challenges that are quite complex and require the expertise of multiple actors. H2020 is challenge-driven but it could benefit from having a more interdisciplinary and solution focus."

Cecilia Sjöberg
Head of the Industrial Technologies division at VINNOVA

POLICY LABS

Sweden has quite strong leaders in smart transport, with Volvo already advanced in production of the connected, self-driving car and Scania in self-driving trucks. The process industry, too, is making headway in terms of far-reaching automation. "And then if we look at the very traditional industrial players, like Husqvarna," Cecilia adds, "there you can see the transformation happening more or less before your very eyes. From technology-product to service orientation. So really, these are the three industries – automotive, ICT and process – where the transformation is most evident. And our job at VINNOVA is to help provide the conditions to enable this transformation to be effective. Like trying to overcome the hindrance of policy. So we have come up with a 'Policy Labs' initiative to identify the policies that are required to transform the innovation into real-life application. In other words, what do we need to do to get our self-driving cars on the road in actual traffic, for example. We are also trying to boost the collaboration between large and small companies because there is so much to be gained from this. And testbeds can provide a good arena for this collaboration. It's important to get the message out there and it's when the results of this collaboration have a real impact on industry and society that this message gains strength. One of our own, Jerker Delsing, is very vocal in championing the cause in the ARROWHEAD project. We need more like that to spread the word and help the transformation kick on."

MAKING A DIFFERENCE IN AMSTERDAM, AND BEYOND

by **CHRIS HORGAN**

In opening the proceedings of the Digital Innovation Forum co-organised by ARTEMIS and ITEA on 10 and 11 May, Laila Gide (President of ARTEMIS Industry Association), along with Zeynep Sarilar (ITEA Chairwoman) co-host and other 'woman in black', commented on the internet enabled revolution, saying, "little did we know then what that would mean today. And little do we know today what that will mean in the future. But it's one of the reasons we are here. To explore the future through what we do today. This forum is all about connecting and connectivity, about mix and match, sharing and exchanging in an interactive and intersocial network."

"Digitisation is transforming every industry, and digital solutions will enable industrialisation and personalisation of care."

Henk van Houten

Before handing the floor to the keynote speakers, Laila issued a rallying call to all the participants, visitors and guests to take the opportunity to get everything they could can out of this very special event. "Just ask yourself what you expect to gain from the Digital Innovation Forum. What you wish to learn, to contribute, to explore. Where you aim to inspire and be inspired. Touch base with the familiar, make contact with the new. These two days have so much to offer. We hope you will take a full and dynamic part in the proceedings and help make it the start of something DIFferent."

TRANSFORMING INDUSTRY

The first keynote speech by Jasper Wesseling, Director for Innovation and Knowledge at the Dutch Ministry Of Economic Affairs, championed the vital role of innovation today in tackling the challenges of tomorrow. He cited the windmill as "a piece of 17th century innovation – essential for success. That was true 400 years ago, and it's true today. That's why we will speak about innovation today and tomorrow." Henk van Houten, Chief Technology Officer of Royal Philips, also underlined the importance of the digital innovation solutions developed in projects like CRYSTAL in the launch by Philips this year of a new generation image guided therapy platform that introduces real-time multi-workspot technology. "Digitisation," he said, "is transforming every industry, and digital solutions will enable industrialisation and personalisation of care."

PIONEERING THE FUTURE

The DIF 2017 displayed, debated and demonstrated the innovation happening today that is pioneering the future and, importantly, providing opportunities to add value to both industry and society. This was well and truly illustrated in the exhibition

of the many impactful projects of around 65 booths where visitors and participants alike were able to find out for themselves how the collaborative efforts are generating impact on business and society. Such as ENABLE-S3 whose aim is to establish cost-efficient, cross-domain virtual and semi-virtual V&V platforms and methods for ACPS (see article on page 31) or SafeCOP that will bring benefits to implementation and certification in healthcare, maritime, vehicle-to-vehicle and vehicle-to-infrastructure by significantly reducing certification costs, increasing trustworthiness, reducing V&V effort, and shortening time to market. The many impressive projects on show prompted another keynote speaker, Max Lemke, head of the European Commission's focus on Digitising European Industry Strategy, to claim "how strong we are in digitising Europe".

STANDING ROOM ONLY

The thematic workshops that considered the four 'smart' areas of energy, health, manufacturing and mobility were sold-out affairs, standing room only. They provided not only insight into the latest developments and food for thought but a real opportunity to exchange ideas and opinions. The Smart Energy workshop looked at issues like distributed energy and grid integration, active grid monitoring, optimising energy consumption, transactive energy in a multi-faceted market and disruptive energy technologies. Smart Health discussed the trends and innovations impacting the market and topics included the personalisation, industrialisation and digitalisation of healthcare along with design and engineering challenges. Smart Manufacturing explored the digitalisation that is affecting production and addressed important issues like the efficient and secure implementation of digitalisation technology in production systems. Finally, Smart Mobility provided a platform for discussion on the latest and most critical issues as well as the emerging technologies on route to connected, cooperative and automated mobility. These workshops provided plenty of opportunity for participation, and there was even a dedicated app that allowed people to pose questions and make comments. Plenty of food for thought!

EXTRA SENSORY FOOD PERCEPTION

From food for thought to thought for food, the Amsterdam Food Hall and a walking dinner gave the DIF participants a different kind of sensory stimulation to suit every taste. The daytime activities gave way to further conversation and networking in a very informal atmosphere where Asian dishes mixed with Italian pastas and Lebanese falafel with Mexican tacos, where a Canadian discussed business perspectives with a Turk and a Scandinavian explored energy synergy with a Spaniard. At times, the enthusiasm in this tower of Babel seemed to translate an intake of food into an outpouring of opinion, and all in excellent taste.

LARGE ECOSYSTEM PROJECTS

The second day kicked off with the parallel ARTEMIS panel session on the Digital Transformation and the ITEA community session. The ARTEMIS panel session featured five different expert panellists who looked at the current state of affairs in an all-inclusive, roundtable debate that explored the role of large ecosystem projects in accelerating the digital transformation. CRYSTAL was cited as an impressive example of how the rich community of academia, research institutions, large companies and SMEs had collaborated to achieve solutions that otherwise would not have developed or would have taken much longer to arrive at.

Certainly, this collaboration was championed by panellist Mateusz Bonecki of BetterSolutions SA, who underlined how SMEs can learn about requirements from such projects and respond with solutions, eventually entering the value networks of large enterprises as suppliers or end-user application providers. Michael Ditze of TWT pointed to the increasing focus on societal challenges in current and future funded projects, suggesting that "in the future we will be selling a much more different product. For example, it won't be a car we own but a car as a service. So with the societal challenge playing a much bigger role in our commercial lives, we will need all the help that we can get from large-scale programmes."

In the end, the general consensus among the panellists, after the all the many and varied opinions and comments, was that large-scale funded projects, despite the occasional issues with manageability, are key to achieving the

innovation, standardisation and solutions that are so essential to driving the digital transformation forward.

INNOVATION MARKET AND SMES

Something new to the agenda – an innovation market that enabled SMEs and start-up companies to exhibit their innovative ideas, services and products to the DIF 2017 attendees. Along with profiling these nuggets of innovation and originality, they had an opportunity to explain their ideas to venture capitalists, CEOs of major industry players and potential customers, or even look for partners to take their ideas a stage further. A series of parallel innovation sessions, along the same themes as the workshops the previous day, saw pitches by these innovative SMEs subjected to a Q&A per SME by a jury of experts and a general Q&A with the audience.

The sessions offered a fascinating insight into the approaches and solutions to specific challenges being taken in the various smart domains. In total there were eight winners – two for each of the four themes – selected by juries of high-ranking juries composed of industry top executives and venture capitalists. To mention just a couple of jury quotes, one of the winners in the Smart Manufacturing category, Batchforce, "works like a market place for manufacturing services. They are to be the booking.com of manufacturing services" and in the Smart Mobility category, "the Livedrive approach to have the driver at the centre of their platform usage is very unique and clear." For the full list of winners and winning ideas plus jury quotes go to https://dif2017.org/iconic-smes.html.

FOUNDATION FOR COLLABORATION AND INNOVATION

And so all good things must come to an end. In closing, the DIF 2017 co-organisers can look back on a dynamic and very well attended conference, one that has laid the foundation for further collaboration and innovation in the pursuit of a successful and accelerated digital transformation. At the beginning of the conference, Jasper Wesseling referred to Robert-Jan Smits, the Director General for Research and Innovation at the European Commission, "who stated last month that with only 7% of the world's population, Europe is generating one third of knowledge in the world." By bringing together this knowledge and innovation in such a dynamic and interactive format, the Digital Innovation Forum certainly provides a vehicle in which the 7% can express this knowledge and help keep European industry at the forefront.
By now, the ladies had swapped their black garments for less monotone and more colourful apparel. The prospects for the future, after two DIFferent days, appeared to have gained a brighter, richer tint.

HIGHLIGHTED FROM THE DIF2017 EXHIBITION

by **CHANTAL SCHOEN**

The Digital Innovation Forum (DIF2017) supported a wide range of exhibitors this year. Not only support of projects within the H2020 and ECSEL-Programme, but also of clusters and platforms. All related to the topic of Digital Innovation, presenting their results and vision of the future.

From H2020 - Smart Cyber Physical Systems, EoT (Eyes of Things) platform showcased *"to be Smart Everywhere, we will need to have Eyes Everywhere"*. This platform combines: a need for more intelligence in future embedded systems, computer vision moving rapidly beyond academic research and factory automation and technological advances in mobile processing power.

"to be Smart Everywhere, we will need to have Eyes Everywhere"

Two other projects, DREAMS and SAFEPOWER with shared focus on criticality, joined the DIF2017 as one Mixed Criticality Cluster (MCC). This Mixed-Criticality Cluster, was motivated by the desire to provide a solution for the effective integration of mixed-criticality systems onto multi-core platforms.

Many projects are actually working together to reinforce each other. Platform4CPS, as coordination and support action, is an excellent example of such collaboration. This CSA aims to create a joint CPS vision, strategy and technology building blocks. During the DIF2017, Platforms4CPS even took the opportunity to perform a live market landscape Workshop together with the participants of the event.

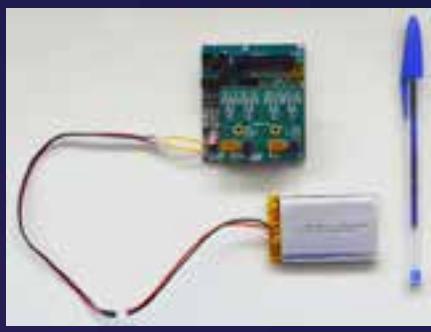
EYES OF THINGS

Already into its third year, Horizon 2020 project Eyes of Things (EoT) is advancing towards a flexible, low-power embedded vision platform. Mass-market mobile devices owe much of their success to their significant imaging capabilities. But could they be used as "eyes everywhere"? Vision is the most demanding sensor in terms of power consumption and required processing power and so EoT's objective is to build an optimised core vision platform that can work independently and be embedded into all types of device.

The EoT platform consists of a reference hardware board (50x47mm) and software libraries and examples. The battery-powered board features low-power efficient components, particularly the Myriad 2 processor, a tiny low-power camera and efficient WiFi chip for communication with the outside world. The developed software includes middleware for efficient message-based communication and multiple libraries for computer vision, motor control, video streaming, audio input/output and support for scripting with the MicroPython language, including a remote IDE. Deep learning is also available in one of the most efficient versions available.

As the platform nears completion, a number of demonstrators is being developed. One of the demonstrators embeds the device into a doll's head and, using deep learning, it recognises the girl's facial expression. This is achieved using local computation only, and images are deleted as they are analysed. In another demonstrator, the device forms a headset configuration and is used as an audio guide for museums. The visitor only has to put on the device and turn it on. From that moment on, the device is able to automatically recognise the painting that the visitor is looking at and provide associated info via audio.

More information is available in the project website: www.eyesofthings.eu.



The Eyes of Things project received funding from the European Union's Horizon 2020 Research and Innovation Programme for research and innovation under grant agreement no. 643924.

PLATFORMS4CPS

The Platforms4CPS Team was present with a community booth in Amsterdam during the DIF 2017 together with their Horizon 2020 sister projects DEIS, CERBERO and CPSwarm. As a highlight the booth was equipped with an interactive survey for visitors to vote on their CPS Priorities. During the two-day event more than 50 visitors from large companies, SMEs, academia, and other institutions (i.e. Clusters, Associations) voted on their priorities. The results of the survey in combination will be used to derive CPS/IoT recommendations for the European Commission and are summarised in the diagrams below. In addition to voting for CPS priorities, the Platforms4CPS booth visitors received information regarding the objectives, approaches and expected impacts as well as how to become members of the Platforms4CPS community. During the event more than 40 new CPS experts joined the project expert group. All members of the expert group will be invited in the upcoming project period to participate in the Platforms4CPS PlatForum, workshops and CPS/IoT related events in Europe.

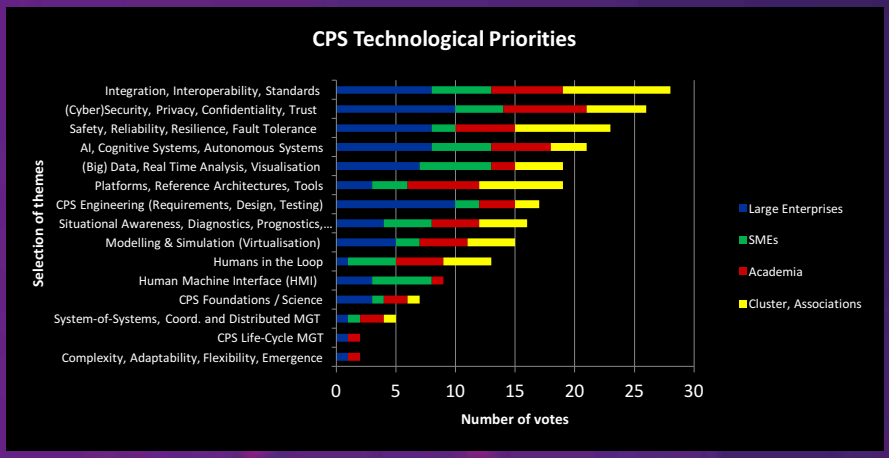


Diagram 1.0: Results of the CPS Technological Priorities voting

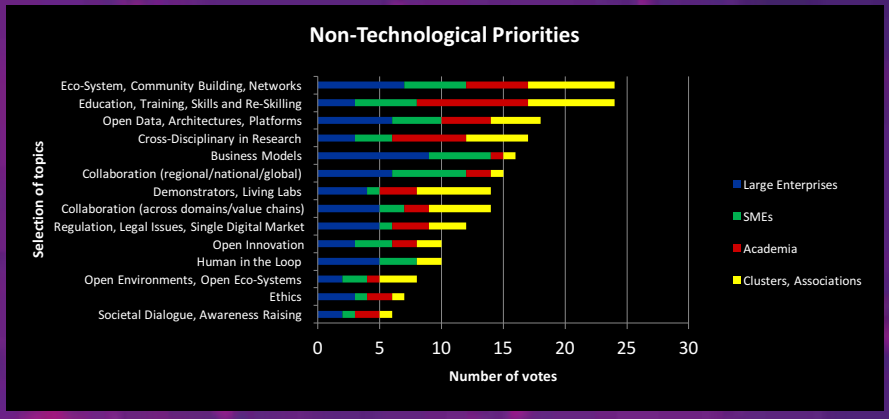


Diagram 2.0: Results of the CPS Non-Technological Priorities voting

PLATFORMS4CPS MARKET LANDSCAPE WORKSHOP ON 9 MAY

In addition, the Platforms4CPS consortium held a Market Landscape Workshop at the same venue right before the DIF event. The aim of this workshop was to discuss the results of an investigation into the CPS and IIoT market segmentation and to contribute to guiding future tasks, including an analysis of competition and opportunities for the European Ecosystem, CPS platform advancement and research roadmap development. The interactive workshop also had the objective to stimulate the discussion of Platforms4CPS Market Segmentation as well as the outcomes of the CPS Platforms Survey, and to identify needs and barriers for a successful implementation in different application domains (manufacturing, transport, energy and health).

ABOUT PLATFORMS4CPS

The Platforms4CPS project is a 24-month coordination and support action, co-funded under the European Union's H2020 Research and Innovation Programme in the area of Smart Cyber-Physical Systems. The project aims to carry out strategic action for future

Platforms4CPS consortium members and visitors voting at the booth)

CPS through roadmaps, support of platform development and constituency building. Platforms4CPS is coordinated by Thales and supported by six other partners (Steinbeis 2i, THHINK, Festo, KTH, fortiss and Systematic) from 4 European countries (France, Germany, UK and Sweden).

Cyber-Physical Systems are seen as essential for the future. As the embedded world meets the Internet world there will be an increasing number of interacting systems with strong connectivity utilised in both society and in industry. Platforms4CPS targets the transport, manufacturing, energy and health sectors. Europe is a world leader in the area of time-critical and safety-critical systems and to maintain this position there is a need to be able to design, develop and deploy highly distributed and connected digital technologies. Platforms4CPS thus aims to:

+ Create a vision and strategy for future European CPS by analysing the ecosystem and market perspective and strategically updating and validating existing CPS roadmaps across domains
+ Promote platform building, bringing together industry and academic experts, and create a repository of CPS technology building blocks
+ Build an ecosystem and support consensus building for the deployment of CPS

Please visit the Platforms4CPS website for more information about the event and presentations of the workshops: https://www.platforms4cps.eu

MIXED-CRITICALITY-CLUSTER AT DIF2017

Modern embedded applications already integrate a multitude of functionalities with potentially different criticality levels into a single system and this trend is expected to grow in the near future. Furthermore, Europe is facing a challenge with the advent of multicore and the potential to integrate in a single platform systems with different levels of dependability and security, known as mixed-criticality systems integration. Without appropriate preconditions, the integration of mixed-criticality subsystems based on multi- and many-core processors can lead to a significant and potentially unacceptable increase of engineering and certification costs.

The European projects DREAMS and SAFEPOWER collaborate in a European Mixed-Criticality Cluster (MCC) and work closely together in terms of identification of future challenges in the design and development of mixed-criticality multicore systems, join dissemination activities and, where possible, exploring techniques to tackle those challenges.

These two European projects presented their technologies at the Digital Innovation Forum (DIF) 2017 in Amsterdam. This international event was the industry-driven digital innovation conference in the Europe, showing research and innovation results and emerging challenges towards a vision on the future for the industry. DIF 2017 took place on 10 and 11 May 2017 in the RAI in Amsterdam, Netherlands.

▶

DIF2017
DIGITAL INNOVATION FORUM

DISTRIBUTED REAL-TIME ARCHITECTURE FOR MIXED-CRITICALITY SYSTEMS

The FP7-ICT integrated project DREAMS started on 1 October 2013 and aims to develop a cross-domain architecture and design tools for networked multicore chips, where the execution of the application subsystems of different criticalities is supported.

In April 2017, DREAMS partners came together in Munich to have another face-to-face meeting before the end of the project. The aim of this meeting was to discuss the current status of the project and to address the recommendations from the last review meeting in order to improve the project results. Moreover, there was a detailed discussion about the final demonstration which takes place at the final review meeting.

DREAMS partners have organised a summer-school on mixed-criticality applications and systems that will take place from 25 to 28 September 2017 in Valencia, Spain. This summer-school is hosted by the polytechnic university of Valencia and focuses on mixed-criticality architectures and platforms. The aim is to provide the students with background and insight, which is hard to attain from the papers in the domain of mixed-criticality systems, by offering a combination of lectures and practical student work.

After intensive work during the past three years, the DREAMS partners are preparing themselves for the next review meeting taking place late 2017. This meeting is going to be the final review meeting and will take place at the end of the project (in October or November 2017). The aim of this meeting will be to review the project objectives and there will be demonstrations of the DREAMS technologies as well as the avionic, healthcare and wind-power use cases.
For more information cf. http://dreams-project.eu/.

SAFE AND SECURE MIXED-CRITICALITY SYSTEMS WITH LOW POWER REQUIREMENTS

The SAFEPOWER project aims to enable the development of mixed-criticality systems with low power, low energy and low temperature in combination with safety and real-time through the provision of a reference architecture, platforms and tools to facilitate the development, testing and validation of these kinds of systems. The SAFEPOWER project has a budget of four million euros and it is halfway through its 36 months execution period.

Critical Real-Time Embedded Systems (CRTES), such as railway and aerospace, face a disruptive challenge caused by the massive eruption of mixed-criticality systems based on multicore processors. At the same time, demand for low power is intensifying in many market segments, a competitive advantage for CRTES having to operate with limited energy (e.g., battery powered systems), an enabler for higher availability and a desired feature towards near-zero emission in systems with tens/hundreds of devices.

SAFEPOWER is building a comprehensive suite of multi-core platform technologies as well as analysis, simulation and verification tools for low-power mixed-criticality systems, including hardware and software reference platforms assisting the implementation, observation and testing of such applications. This includes IMPERAS' OVP technology extended to cover the multicore, power estimation and safety analysis requirements of the project in simulation time and FentISS' XtratuM hypervisor as the handler of all safety and power related services on runtime.

For more information cf.
http://safepower-project.eu

LARGE-SCALE FUNDED PROJECTS ARE AN IMPORTANT VEHICLE TO ACHIEVE THE INNOVATION

"driving engagement between small and large companies and accelerating the growth of markets by supporting eco-systems."

by **CHRIS HORGAN**

The Digital Innovation Forum 2017 gave the ARTEMIS panel session an opportunity to explore the role of large ecosystem projects in accelerating the digital transformation, whereby a rich community of academia, research institutions, large companies and SMEs collaborate to achieve solutions that otherwise would not be developed or would take much longer to arrive at. Moderated by Meike Reimann, senior project manager at Steinbeis 2i GmbH, five panellists (Kees Nieuwenhuis of Thales, Irene Lopez de Vallejo of Digital Catapult, Andreas Eckel of TTTech, Michael Ditze of TWT GmbH and Mateusz Bonecki of BetterSolutions SA) took up the challenge of debating the key issues to achieving the innovation, standardisation and solutions that are so essential to driving the digital transformation forward.

SCHUMPETER'S INNOVATION RIDDLE

Kicking off the debate, Dr. Kees Nieuwenhuis centred on the strategy taken by Thales on digital transformation whereby investment in the development and exploitation of software platforms to build applications is seen as key. "Not only do they last much longer then the technology components that they contain, but they are also hardware/machine-independent, and therefore maintainable, and they provide sustainability for longer-term product solutions," he explained. While acknowledging the importance of collaboration between large companies and SMEs in the whole digital transformation process, and the projects aimed at accelerating it, he cited Schumpeter's Innovation Riddle – whether industry where small firms thrive will see more innovation or whether large companies, and industries dominated by them, contribute most to innovation. "Large companies and industries are drivers of innovation, and we use existing markets and value networks to generate a return on our investment."



SPIRIT OF ENGAGEMENT

Dr. Irene Lopez de Vallejo, Director of Collaborative Research at Digital Catapult, has a vested interest in helping businesses of all sizes to use digital technologies to grow, export and increase productivity. She is keen to see barriers to innovation lowered through a number of interventions, such as building, coordinating and increasing access to large-scale test beds, "driving engagement between small and large companies and accelerating the growth of markets by supporting eco-systems."

This 'engagement' is something that Dr. Mateusz Bonecki, Director of R&D at BetterSolutions SA, feels is an essential ingredient for companies like his to develop digital enabling technologies. "Apart from R&I grants, we need cooperation with large enterprises. This helps us learn about what is required and we can respond with solutions. Eventually we can enter the value networks of large enterprises as suppliers or end-user application providers." SMEs have innovation potential, are early adopters of R&D&I project outcomes and get end-user applications in the market. "We are also helping to build the digitisation ecosystem and digitise traditional sectors and niche markets. But we do need support in high-risk research and innovation projects."

USING NOT OWNING

Andreas Eckel, of TTTech, and Michael Ditze, of TWT, as representatives on the panel of the 'mobility' world, considered the impact that digital transformation would have on our perception of mobility in the future. Andreas saw that electrification would be a prime mover in making mobility 'smart' in a decade or so, with eVehicles becoming mainstream and Mobility as a Service the new form. Michael Ditze of TWT echoed this conclusion, pointing out that "with societal challenges increasingly taking centre stage in current and future funded projects, in the future we will be selling a car as a service."

CRYSTAL

Having made their pitches, Meike Reimann got the panellists stuck into the main issues of the day, starting with the question: "Do large eco-system projects contribute to speed up the Digital Transformation?" Irene jumped in straightaway: "Yes" but "they have to be done in the right way, with right partners, in the right places and for the right reasons. They are certainly necessary but they have to be done correctly." The DIF voters (voting via a dedicated app) were overwhelmingly in agreement. Michael cited CRYSTAL as an outstanding example: "CRYSTAL really is a brilliant example of how we succeeded in coming together of the right expertise with the right balance to deal with complex objectives to generate very valuable outcomes."

BALANCING ACT

While Kees agreed that such projects are very "rich and enriching", he did feel that given their complexity, it is important to consider how best to manage them and take account of not only the different vested interests of all the partners but also of the added responsibility of tackling the societal challenges. It's a major balancing act. Mateusz agreed that these are important issues and that there is room for improvement in the processes and mechanisms of such projects but he said as far as SMEs are concerned as partners in these projects how R&D can make an actual impact on their development. TWT's Michael Ditze added that his company's participation in these projects involving industry, academia and research partners had contributed in large part to the growth that the company has enjoyed, from 30 to 600 employees within ten years. "The key is to cooperate with these partners, not to compete with them." Andrea backed this up, saying that TTTech would never have gained the status it has achieved, and being an important aerospace partner, without the company's involvement in a major collaborative project – "we became someone."

JUST DO IT

But he also warned that all these collaborative initiatives in Europe run the risk of getting bogged down in the preliminaries and falling behind the United States where the approach is to "think of an idea, build a platform around this idea and introduce it. In Europe we need to pull out the idea and do it. We've been thinking for twenty years about connectors for electric cars. What did Tesla do? They just built the connectors and charging points and put them in place. This is the way we have to go in Europe." At the same time, Kees reminded the audience, "platforms enable you to capitalise on technology. There are many platforms out there and we need a way of sharing them."

"with societal challenges increasingly taking centre stage in current and future funded projects, in the future we will be selling a car as a service."

CONSENSUS

As the panel session overran its timeslot – mainly due to the liveliness of the discussion and the multiplicity of views and opinions – the only conclusion that could be dawn is that the topics covered are both highly relevant and sometimes contentious but the general consensus among the panellists in the end was that large-scale funded projects are an important vehicle to achieve the innovation, standardisation and solutions that are so essential to driving the digital transformation forward.

DIF 2017
DIGITAL INNOVATION FORUM

A FASCINATING VOYAGE

THREE FORMER CAPTAINS ON THE BRIDGE

by **CHRIS HORGAN**

Three former presidents of ARTEMIS-IA – Yrjö Neuvo, Klaus Grimm and Heinrich Daembkes – trained their ARTEMIS arrows on their time at the helm, the current state of affairs and their hopes for the future.

When Yrjö was appointed the first president of the then new ARTEMIS Industry Association, he had already been helping to create the germ that would eventually become a vehicle for the Embedded Systems industry in Europe, one that would overcome all the normal teething problems of any new, ambitious organisation before reaching a level of maturity that first Klaus and then Heinrich would inherit, including all the complexity that comes with it.

LAYING THE FOUNDATION

"The initiative for the European Technology Platform we know today as ARTEMIS-IA actually got under way in 2003 with a push from the European Commission's Kostas Glinos. And it was he, in fact, that was the mastermind behind the establishment of the ARTEMIS Joint Undertaking in this crucial initial phase," Yrjö explains. "And Jan van Biesen, too, of Philips was a key figure since he was the one who really understood the rules, regulations and requirements of the European Commission. And the name? It's a nice acronym – for Advanced Research & Technology for EMbedded Intelligent Systems – and an even nicer symbol, the Greek goddess of the hunt. Because we were also on the hunt you might say, a quest to strengthen Europe's position in Embedded Intelligent Systems and help European Industry gain world-class leadership. They were certainly exciting times."

THE GERMAN WAY

"And exhilarating, too," add Klaus, Yrjö's successor who has fond memories of his time as President of ARTEMIS Industry Association. "Of course, I realise now in my semi-retirement more than ever how much time this role took up in addition to my job at Daimler. All the travel, the meetings, the events. But I really enjoyed working for the IA very much, serving in the Steering Board and later as its president. I met so many competent and influential people, and together we were able to achieve significant results and improvements. And very often I felt like a member of a large family and made quite a lot of friends. Looking back, I must say that one of the things I am proud of is that I managed to make sure that everyone was able to catch their flight or train after our meetings. They all referred to it as the 'German' way. So I guess I will always be associated with that. I suppose if I had to change anything during my term as President, it would have been to have taken more time for the politics of the JU. So I'm grateful to Jan Lohstroh and my colleagues from the Steering Board for all their trips to Brussels!"

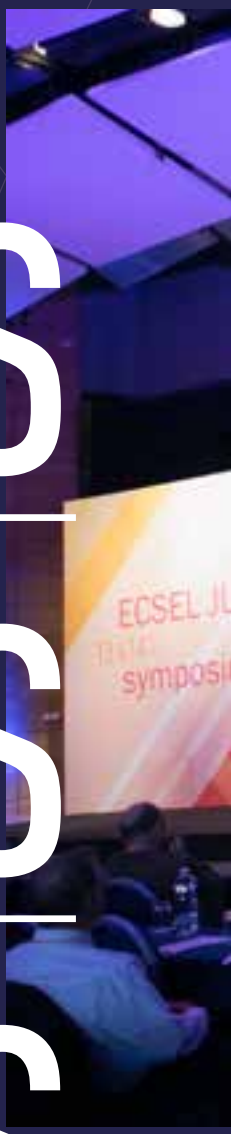
RAPID PACE OF DEVELOPMENT

"As far as that goes, nothing changed when I took over," says Heinrich. "Time was a premium. But much has changed in the meantime. I realised even when I think that when ARTEMIS was founded there was a sense that something important was going to happen, which would go beyond the bare electronics or hardware. Intelligence was the key and the electronics was helping to spread this everywhere. What we could not have imagined ten years ago is the incredibly rapid pace of development. Industry today is a very different landscape because of this. What we have witnessed is a true revolution that embedded intelligence has brought to our everyday lives. You just have to think of the smartphone. Our lives are just not the same. And we are still a long, long way from the maximum. And where it will take us is anyone's guess."

A NEW BEGINNING

Heinrich: "Bringing the picture right up to date, the ECSEL-JU fills the background now. There is a common budget for this new joint undertaking of which ARTEMIS-IA is now part. It is clear that both sides in the new JU need each other. The hardware needs the software and vice versa. It is only together that the progress that needs to be achieved can be achieved." Yrjö backs this up. "The growth has been exponential, indeed, and now with the advent of big data analytics and blockchain developments, the non-physical aspect is taking on an increasingly prominent role, and that is the direction in which the value is heading." Klaus is convinced that the idea of bundling forces is vital to Europe, "especially when I see what is happening in the political field within and outside of the EU. Europe has to concentrate on the most important challenges, as in the area of the Internet of Things, in order to avoid losing ground compared to the rest of the world, especially the USA and Asia."

And so these three former stewards, now steering different ships as they continue to journey around the embedded world, both digitally and physically, having relived the past a little and contemplated current developments, move on with ARTEMIS still very much in their DNA.



SUCCESS BREEDS SUCCESS

by
COLIN MACKAY
& IRIS HAMELINK

ECSEL JOINT UNDERTAKING SHAPING DIGITAL INNOVATION IN EUROPE

On 14 June 2017 ARTEMIS-IA travelled to St. Julians, Malta to visit the ECSEL Symposium. The European Union's €5bn flagship Research and Innovation public-private partnership for Electronics, the ECSEL Joint Undertaking, organised this event under the auspices of the 2017 Maltese Presidency of the Council of the European Union and aimed at delivering on its objective of bridging the gap between research and exploitation.

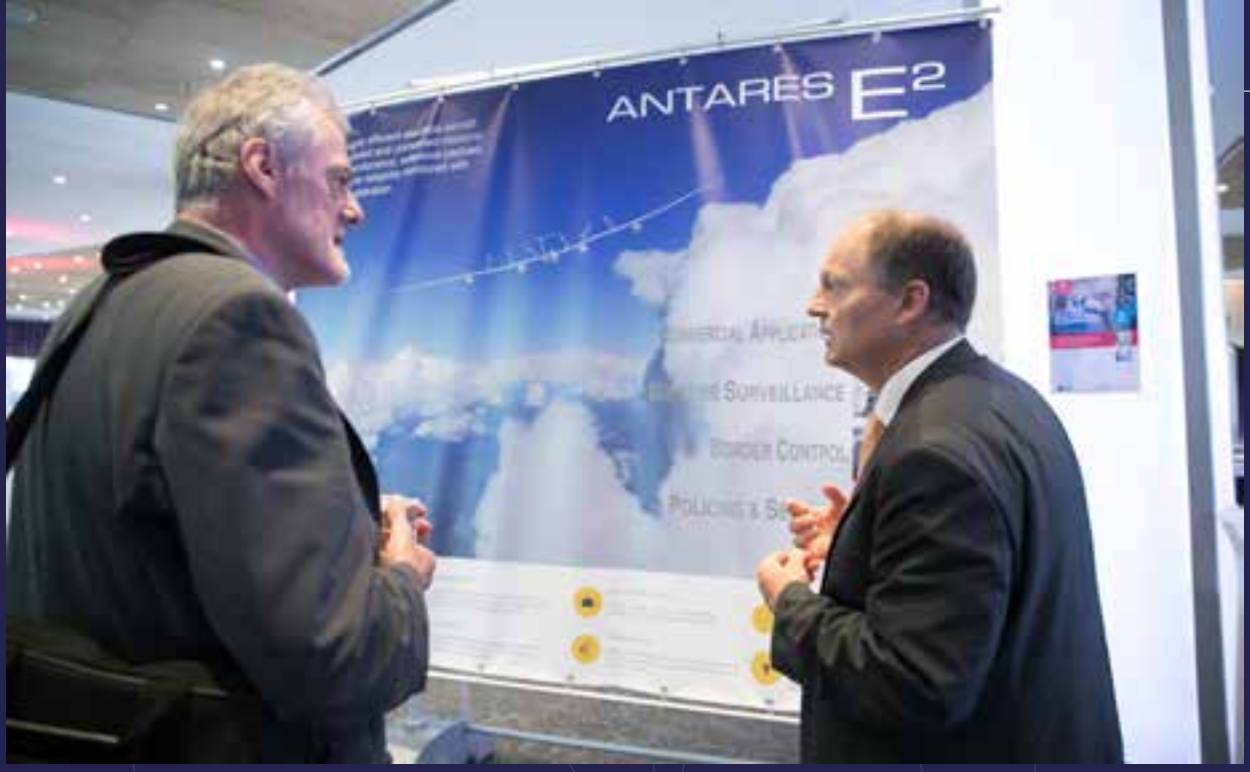
Malta is one of the longest continuously-inhabited locations in Europe; colonised by the Phoenicians around 1000 BC and a favoured location for traders, invaders and holidaymakers ever since. Although at first glance it appears to be from a different age, the EU's smallest member state offers excellent modern IT infrastructure and a digitally literate population. In other words, the ideal location for a new set of invaders, the benign but no less dynamic delegates attending the ECSEL JU symposium on "Shaping Digital Innovation" (nice link indeed but if we use that once we cannot use it again).

Attendees had come to discover not only what the ECSEL-JU has achieved to date, but also why the work it is doing is so important. The world is increasingly a connected and 'smart' environment; not simply the internet as we know it, but the 'Internet of Things' where billions of devices are connected.

This connectivity is set to drive the modern economy; if Europe is to play a part in this revolution and determine its own role, it needs to be properly equipped to compete. This means ensuring Europe can make the most of the innovation happening within its borders, ensuring its innovative talent and technological know-how does not slip through the gaps, or worse still, move to other regions.

Bert De Colvenaer, Executive Director of ECSEL-JU, said "Too often, our rich research capabilities have not benefited Europe to the extent they should. Fragmentation provided an obstacle between concept and market. The ECSEL-JU was conceived to ensure that Europe retains and maximises this capacity, helping Europe compete in the technology systems market. By all measures, it has been successful." He continued, "More than this, it is now helping to orient this capacity to

The world is increasingly a connected and 'smart' environment; not simply the internet as we know it, but the 'Internet of Things' where billions of devices are connected.



"ECSEL is the reliable, affordable and credible platform for bringing all these stakeholders together"

Bert De Colvenaer

address core societal needs and provide solutions to pressing problems, and we're now ready to play a role in the next phase of development."

ECSEL is creating clusters of excellence where SMEs and large enterprises can engage and cooperate. Although the benefits seem obvious, such an ecosystem was unlikely to form spontaneously; SMEs don't have the resources, while large companies need encouragement to look outside their core expertise. ECSEL has encouraged these clusters to form, leading to something greater than the simple sum of the individual parts. In turn, this attracts external investment that pulls in more companies – a virtuous circle. It's a success story that Europe can take pride in.

Indeed, arguably, the only place where ECSEL is not excelling is in selling. It seems unduly modest about what it has achieved; not simply the individual projects, but also the ecosystem that it has created. Bert De Colvenaer, Executive Director of ECSEL-JU, is keen for this to change. "Success breeds success, but we need to make people aware of that success. All our stakeholders should be vocal about the benefits of ECSEL. Let SMEs know that we can provide access to a wider range of opportunities and end games than they could establish themselves. At the same time, encourage large enterprises to look beyond their core activities and see the potential of research and developments that may not yet be on their radar."

Recognising this is one of the key reasons for launching the 1st ECSEL Symposium, and with this, ECSEL JU is positioning itself to become more visible - at the political level also - as the leading European strategic initiative. After all, as De Colvenaer states, "ECSEL is the reliable, affordable and credible platform for bringing all these stakeholders together", and now wants to prove this by providing dedicated opportunities for the ECSEL funded projects to show off their results in a forum that can spearhead their concrete economic and societal valorisation at all levels within the EU.

The ECSEL JU has been, and will continue to be a success, and will provide a vital component in Europe's economic future in the smart economy. It may not be with us for as long as Malta's 3000 years of habitation, but clearly it will be around for some time yet. The Phoenicians, the Mediterranean's original trading nation, would be proud.

A MULTI-CORE TECHNOLOGY BREAKTHROUGH FOR ALMOST EVERY APPLICATION DOMAIN

by **WERNER WEBER**

EMC² started in 2014 as ARTEMIS-JU project, continued within the ECSEL-JU programme, and ended earlier this year, with amazing results. With 99 partners, EMC² is one of the largest projects in the area of Embedded Intelligence in Europe. It was labelled as ARTEMIS Innovation Pilot Programme project, and is the largest AIPP to date. EMC² finds solutions for dynamic adaptability in open systems. Embedded Multi-Core Systems for Mixed Criticality Applications in Dynamic and Changeable Real-Time Environments, or EMC², enables mixed criticality multicore applications in real-time conditions, with scalability and utmost flexibility, full-scale deployment and management of integrated tool chains, through the entire lifecycle.

LOWER DEVELOPMENT COSTS, QUICKER TIME TO MARKET

EMC² is part of the European Embedded Systems industry strategy to maintain its lead by providing solutions for dynamic adaptability in open systems. A flexible Multi Processor System on Chip (MPSoC) architecture that can be tailored by middleware to the needs of a particular application domain will substantially reduce the non-recurring development costs and the time-to-market of new Embedded System applications and significantly cut the recurring cost of the respective products. The infrastructure's applicability is demonstrated by six dedicated living labs from various application domains, including automotive, aerospace and communication, representing European major industry sectors.

KEY MARKETS

The aims targeted by the EMC² project in the key European markets are:

+ **Automotive**: reduction of 100+ heterogeneous ECU's in a car by a factor 4 to 5, with resource guarantee for critical applications and full software flexibility to cut architecture cost and improve performance for control and detection algorithms using multicores.
+ **Avionics**: internal and external monitoring and a hypervisor for multicores in safety-critical applications and software development, to facilitate certification processes.
+ **Space**: introduction of reconfigurable self-healing architectures for image compression in the Space demonstrator for telecom and micro-satellite platforms. **Industrial control and factory automation**: including scalable unobstructed visual inspection, scalable secure solution, multi-radio indoor positioning and motion capable industrial drive.
+ **Medical Imaging**: reduction of Magnetic Resonance Imaging need from three hardware systems to a single multi-core hardware system.
+ **Video surveillance for critical infrastructure**: performance gain of a factor of 60 (1280 * 720 pixels)
+ **Seismic processing (Energy)**: automatically generated multicore C++ code that runs 2-60 times faster than serial MATLAB code.
+ **Internet of Things**: Five use cases within the IoT domain where EMC2 helped to develop new functionalities

STRENGTHENING EUROPEAN INDUSTRY

This project covers the full range of open research issues from security and active diagnosis in MPSoCs, integrated resource management, internet integration of MPSoCs and appropriate tool environment. Driven by application needs, EMC2 has a strong focus on re-configurability and adaptability. The project is also in line with the reference designs and architectures concept promoted by ARTEMIS to provide solutions to key technical challenges – such as networking, security, robustness, diagnosis, maintenance, integrated resource management, self-organisation and, most notably, dynamic adjustments in changing systems. By making real, tangible contributions that support quantitative ARTEMIS targets, EMC2 is helping to strengthen the competitiveness of the European Embedded Systems industry.

RECAP OF ARTEMIS BROKERAGE EVENT 2017 IN BRUSSELS

FULL HOUSE AND A DYNAMIC ATMOSPHERE FOR CONSORTIUM BUILDING

by **IRIS HAMELINK**

Brussels, Wednesday 31 January 2017 - The 10th edition of the ARTEMIS Brokerage Event received an all-time high of 285 registrants and 254 participants from 23 countries including Russia and Turkey. Besides the strong presence of ARTEMIS-IA members, 45 non-members and national contact representatives from 8 different countries joined the lively discussions around the topic of Embedded Intelligence.

The new set-up of a 1,5 day event with an open Face2Face meeting square, interactive voting tools and around 30 project idea posters, again provided a fertile basis for project consortia discussions.
The ARTEMIS Brokerage Event 2017 focused specifically on the topic of Embedded Intelligence (Embedded & Cyber-Physical Systems, Internet of Things and Digital Platforms) within the ECSEL Calls 2017. Of course this event included, as always, project proposals for other related calls within H2020.

The Brokerage kicked off in a full plenary room in which the ECSEL-JU introduced the topics of the MASP 2017. A new chapter in the MASP 2017 is on 'Safety and Security'. Furthermore the presentation highlighted the most important changes of the MASP 2017 in comparison with the MASP 2016.

The objectives and strategy for both chapters 'Cyber-Physical Systems' and 'Safety & Security' from the MASP 2017 were presented in more detail by the leaders of the specific chapter writing teams.

ECSEL-JU CALL INFORMATION 2017

ECSEL-JU explained the process and calendar of the ECSEL Calls 2017. The ECSEL Joint Undertaking has two parallel calls: the Research Innovation Action (RIA) and the Innovation Action (IA). Both calls will have two phases: the PO Phase (Project Outline) – Compulsory and Gating and the FPP phase (Full Project Proposal)

PROJECT PITCH AWARD

During the day, visitors walked in and prepared their project idea poster area and their pitch. 30 project posters were brought to the event and in the late afternoon the ARTEMIS Brokerage 2017 started with the project idea pitches. Before the pitches started, Ad ten Berg informed the audience that this time the project idea pitches have an extra dimension, because the audience may vote at the end of the day to decide who had the best project idea pitch.

Call	Type	Type equivalence	TRL focus
ECSEL 2017-2	Research and Innovation Action (RIA)	Industrial/Applied Research projects	3-4
ECSEL 2017-1	Innovation Action (IA)	Experimental development projects	5-8

Date	Activity
15 February	Governing Board
22 February	Call launch
11 May at 17:00:00	Deadline Project Outline (PO)
June	Feedback on PO
21 September at 17:00:00	Deadline Full Project Proposal (FPP)
November	Selection of projects for funding
December - April	Grant Preparation phase

Call	Topics	Estimated EU expenditure	Estimated public expenditure (EU + national)
ECSEL Call 2017-1: IA	All topics of the MASP	92.5 M€	185 M€ (total costs: 560 M€; in-kind contributions: 375 M€
ECSEL Call 2017-2: RIA	All topics of the MASP	67.5 M€	135 M€ (total costs: 270 M€; in-kind contributions: 135 M€
Total estimated EU funding		160 M€	

In total 17 pitches were given and the stage of the project ideas varied very much. Almost ready to go consortiums - to project ideas that were at the very first stage of the project idea. When the session was completed the audience was asked to login to the voting tool and get ready to choose their winner. After all votes were counted, the tool showed the winner by displaying the winning pitch in a word cloud visual. The winner was written in the biggest font, thus the audience knew that DevSecOps was the winner of the day!

DevSecOps, *for the construction of Cyber-Physical Software & Systems* was presented by Prof. Pekka Abrahamsson. He emphasized that while security is critical for CPSS, the traditional security approaches are costly, time-consuming and unfit for a world which is iterative, online and connected. Abrahamsson continued to explain that security is owned by specialists and the concern is not shared in the CPSS construction organization and said: *'We can not defer fixing security problems to upcoming releases, we must fix them as they appear'.*

The DevSecOps project idea wants to focus on achieving the benefits of Continuous Delivery and do that securely by **increased delivery speed & smartness**. Abrahamsson continued by telling that CPSS has not been able to embrace the "fail fast and often" paradigm due to constraints.

Abrahamsson concluded that DevSecOps will focus on an organization-wide, **new mode** of intense collaboration with **more secure systems** with **better development control**. Development of design methods, practices and tools that support and enable DevSecOps in CPSS.

DevSecOps had an absolute strong and interactive pitch and was therefore the strongest project idea of the day.

BEST PROJECT POSTER

30 poster ideas were displayed in the poster area and on day two, the dynamic poster session started. At the ARTEMIS-IA Brokerage 2017, the organization decided to try out a new set-up for the poster and meeting sessions. This meant less break-out rooms but a couple of large open meeting spaces

DevOps + Security: DevSecOps

which can be formed to the wishes of the 'upcoming' consortium. This gave the event an open and approachable atmosphere.

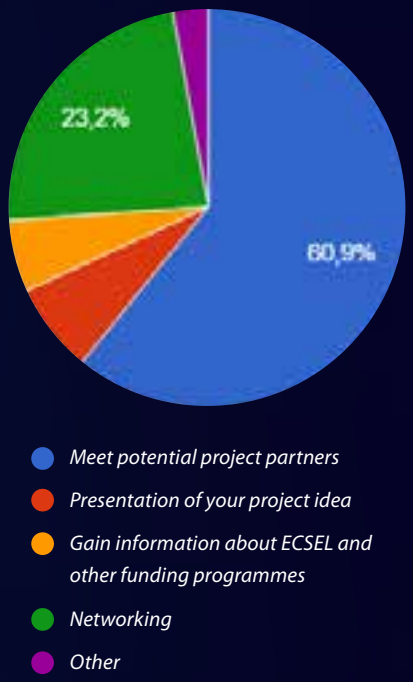
After the sessions, the audience gathered again for the closing session and the voting for the Best Project Poster. It was a close call, but the Emercare Future project proposal received the most votes from the audience. Emercare was a project proposal with high interest of the audience. During the poster session the Emercare meeting attracted many participants.

Emercare focusses on emergency medical services such as ambulance services or paramedic services providing out-of-hospital acute medical care and transport to emergency care due to a significant increase in the average age of the population. Older people are statistically more likely to use urgent care and emergency medical services but due to financial restrictions there is a strong pressure to be more and more cost-efficient.

The aim of the project idea is to build an intelligent data driven support for professionals (at home care, elderly homes, hospital emergency units) in the emergency care decision making.

CLOSING VOTE

ARTEMIS-IA applied the new online tooling to receive input on the newly introduced "best project pitch award" and the "best project poster award".



During the closing session, ARTEMIS-IA asked the audience through the online tool what their main purpose was to visit the event and if they had reached that goal.

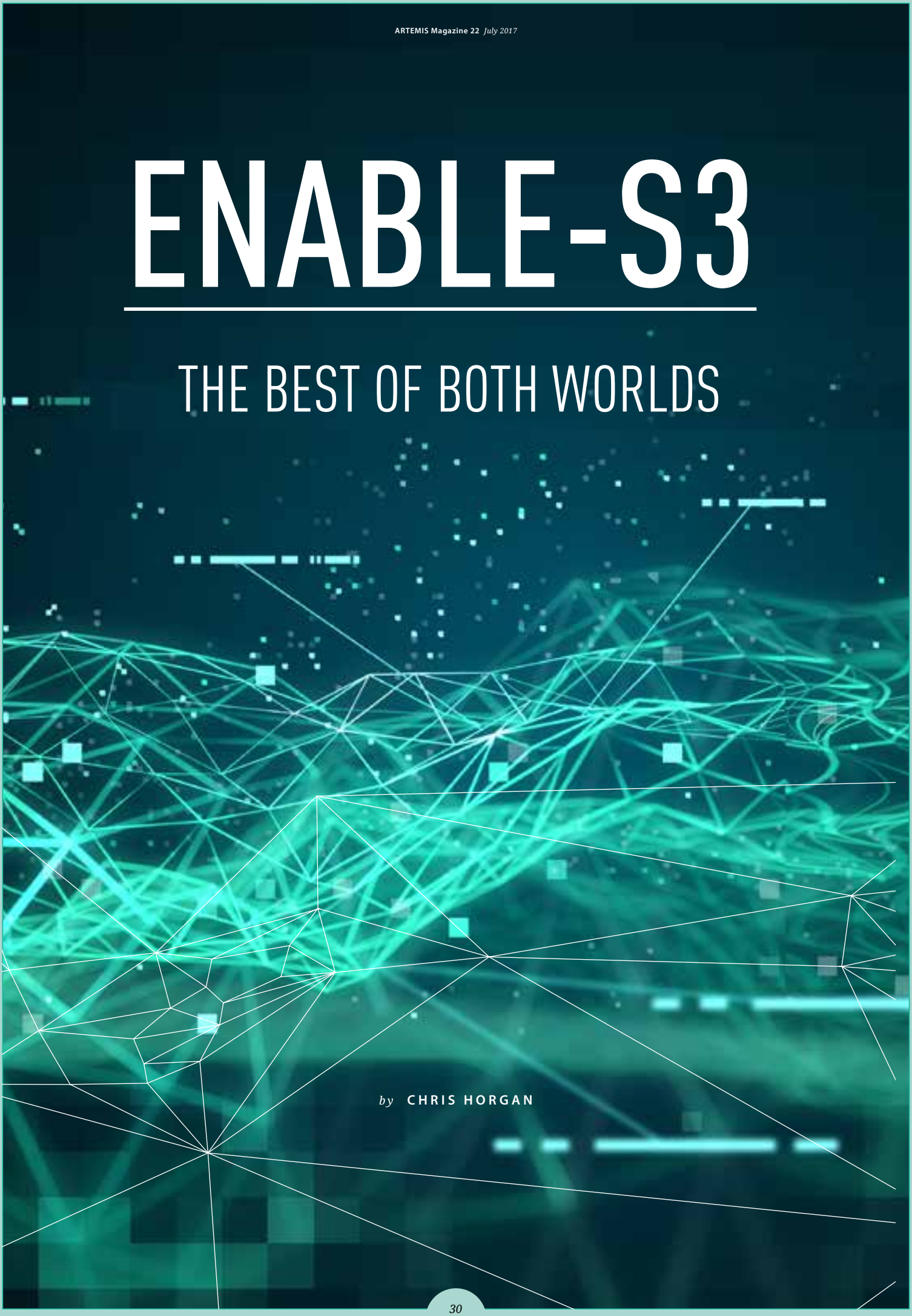
ARTEMIS is very happy to observe that more than 90% voted yes and stated the event was useful. A great way to close a 1,5 day event, and the ARTEMIS office wishes you all the best in finalising your project idea!

PROJECT IDEA TOOL

An excellent tool in finalising your project idea is the ARTEMIS Project Idea Tool (PIT). This web-based application is not only used in preparation of the Brokerage Event, but is available year-round for publishing project ideas, searching for project partners and joining consortia. The tool will continuously be improved further, to fit to the needs of our community even better.

ENABLE-S3

THE BEST OF BOTH WORLDS



by **CHRIS HORGAN**

In the growing world of automated systems, verification & validation is a both a cost-intensive and time-consuming process. More advanced and efficient methods are needed to pave the way for the commercialisation of highly automated cyber physical systems (ACPS). The limitations in modelling mean that pure simulation cannot cover the physics in sufficient detail and real-world tests are too expensive, too time-consuming and potentially dangerous. It is in this context that ENABLE-S3, an industry-driven project, is getting to grips with developing an innovative solution capable of combining both worlds in an optimised manner.

COMPONENTS AND BRICKS

ENABLE-S3 is strongly industry-driven, employing realistic and relevant industrial use-cases from smart mobility and smart health to define requirements and assess the benefits of the technological progress. The consortium combines the strengths of the partners from industry (domains) and academia (research) and during the first year of the project, most of the work and effort focused on delivering a common ACPS architecture for six different domains — aerospace, automotive, health, farming, maritime and rail. The components and bricks, both reused and developed for the needs of certain domains, are being presented in dedicated demonstrators. At the General Assembly in Porto (May 2017) the major focus was the presentation of the Use Case demonstrators and the alignment of technical progress achieved in the various work packages. This "Market Place" provided an arena for the demonstration of the first project prototypes – some 23 demonstrators in all covering all six domains, an impressive number.

Apart from the UC and SWP workshops, monthly Technical Board Meetings are held to align technical topics. There is also exchange with related projects such as PEGASUS and ADAPTIVE, and initial discussions have taken place with standardisation organisations. By the end of April 2017, a total number of 39 deliverables had been submitted to the ECSEL JU. At the end of the project, dedicated metrics and measurements will be used by the use case owners to evaluate the project results and to determine whether the goal of ENABLE-S3 to replace the current costly validation techniques has been achieved. A first set of these quality metrics will be available as a public deliverable on the ENABLE-S3 website in the coming months.

HIGHWAY AND MARITIME PILOTS

In the (mini) driving cube highway pilot, an automotive test bed (powertrain test bed or alternatively a chassis dynamometer) extended by physical sensor stimulators is used to reproduce plausible, physically correct environmental conditions for the vehicle and therefore for the automated driving function. The test bed includes dynos, vehicle fixation and hardware interfaces for the sensor stimulators. A 1:10 scale version of the test bed acts as a development and demonstration facilitator to show how the different tools and methods, related to the Highway Pilot testing functions developed during the project, can be integrated.

The car itself is equipped with an automated highway pilot function as well as the required sensors: cameraand ultrasonic (for the 1:10 scale version). Since it is not goal of the project to develop the Highway Pilot function itself, the demonstrator is used to validate an existing one. The environment is simulated in Vires VTD. A virtual vehicle in the Vires VTD simulation environment will demonstrate fundamental trajectory planning, tracking and ma-noeuvring functions that are implemented in the system under test (as ROS nodes).

In the maritime pilot, the *Virtual Ship* platform, virtual validation of a planning station under differ¬ent environment conditions (weather con¬ditions, traffic conditions, etc.) has been enabled. The virtual ship platform is intended to be used as a part of the testing environment for the NAVTOR Shore Based Bridge validation, needed to get the ship to its final destination safely. What is quite remarkable about these pilots is the extensive reuse that has been employed between the automotive and maritime use cases.

MAJOR MARKET POTENTIAL

These pilots are examples of automated cyber-physical systems (ACPS), disruptive technologies that are part of the digitalisation transformation that is sweeping across industry in all parts of the world. They have the potential to change society with all attendant benefits and risks. We cannot underestimate the impact of assigning some of our responsibilities to a machine, so it is essential that ACPS delivers on its promise to improve safety, provide accessibility to all sectors of society and improve productivity by reliably freeing humans from routine tasks. At the same time, these technologies represent a major market potential for European companies. Their impact on our daily life and on the industry will be very strong. In adding the key verification and validation technology bricks required to ensure the dependability (safety and security) of ACPS at affordable costs, ENABLE-S3 will help set the foundation on which future standards can be built.

EFECS 2017

5-7 December
Brussels

Our digital future

SAVE THE DATE!

European Forum for Electronic Components and Systems

Organised by:
AENEAS, ARTEMIS-IA
EPoSS, ECSEL-JU &
European Commission

CP-SETIS

STRATEGIC RESEARCH AGENDA ON STANDARDISATION FOR CYBER-PHYSICAL SYSTEMS

by **JÜRGEN NIEHAUS**

On 10 May 2017 the CP-SETIS project released the Strategic Research Agenda on Standardisation for Cyber-physical Systems. This document is the final deliverable of the CP-SETIS project which includes the work done in the support actions ProSE ("Promoting Standardization for Embedded Systems", FP7, contract no. 224213) and CP-SETIS (Towards Cyber-Physical Systems Engineering Tools Interoperability Standardization, grant agreement no. 645149).

ARTEMIS-IA (Industrial Association for Advanced Research and Technology for Embedded Intelligent Systems) considered Standardization from the very beginning as one of the key pillars to create a sustainable innovation ecosystem. CP-SETIS is a support-action type IA (Innovation Action) in Horizon 2020, driven by key players from the ARTEMIS Standardization community and key ARTEMIS/ECSEL projects focusing on the particular aspect of tool interoperability. As opposed to the efforts in the past, the goal is no longer to initiate, enhance or update one or the other particular standard, but to cover the whole area of tool interoperability. This cannot be done by just one interoperability standard, specification or guideline, but needs adoption and adaptation of a whole set of standards, specifications and guidelines from different areas and organizations.

How this is planned to be achieved and how the approach has to deviate from the ProSE approach will be explained in this document and related deliverables of CP-SETIS.

CALENDAR

EUROMICRO DSD/SEAA 2017

30 Aug - 01 Sep 2017

VIENNA, AUSTRIA

The Euromicro Conference on Digital System Design (DSD) addresses all aspects of (embedded, pervasive and high-performance) digital and mixed HW/SW system engineering, covering the whole design trajectory from specification down to micro-architectures, digital circuits and VLSI implementations. It is a forum for researchers and engineers from academia and industry working on advanced investigations, developments and applications.

SAFECOMP 2017

12-15 Sep 2017

TRENTO, ITALY

SAFECOMP is an annual event covering the state-of-the-art, experience and new trends in the areas of safety, security and reliability of critical computer applications. SAFECOMP provides ample opportunity to exchange insights and experience on emerging methods, approaches and practical solutions. It is a single track conference without parallel sessions, allowing easy networking.

ITEA PO DAYS

12-13 Sep 2017

BERLIN, GERMANY

On 12 September, the fourth ITEA 3 Call for project proposals will open in conjunction with the ITEA Project Outline (PO) Preparation Days in Berlin on 12 &13 September. This event is the perfect way to jump-start your preparations for an ITEA Project Outline.

TNO-ESI SYMPOSIUM

03 Oct 2017

EINDHOVEN, NETHERLANDS

This TNO-ESI Symposium 2017 will feature a varied programme with keynote speakers from industry and academia, parallel sessions, workshops, and an innovation market with demos from our eco-system partners. Moreover, there will be plenty of networking opportunities. This symposium is co-hosted by the Eindhoven University of Technology and High Tech NL.

EPOSS ANNUAL FORUM 2017

19-20 Oct 2017

GRAZ, AUSTRIA

In light of new developments towards increased automation and connectivity this year's Annual Forum will focus on Smart Systems for an Automated World. In order to demonstrate new paths for Smart Systems presentations shall focus on smart systems solutions for those application areas massively affected by automation and strongly benefitting from smart systems development

ENERGY INFO DAYS 2017

23-25 Oct 2017

BRUSSELS, BELGIUM

This year the Energy Information Days will present the new funding opportunities and innovative schemes offered by Horizon 2020 Work Programme 2018-2020. Applying for funding is a competitive process, and only the best project proposals will be selected.

ECS 2017

07-08 Nov 2017

STOCKHOLM, SWEDEN

The Embedded Conference Scandinavia (ECS) is the largest embedded conference in Europe. This two-day event offers several conference tracks with selected speakers covering important trends and key areas of embedded applications and technologies. In addition to the conference a substantial exhibition gathers a wide spectrum of companies in the embedded industry.

EFECS

05-07 Dec 2017

BRUSSELS, BELGIUM

EFECS - the European Forum for Electronic Components and Systems - is a brand-new event, co-organised by AENEAS, ARTEMIS-IA, ECSEL-JU, EPoSS and the European Commission. The premiere edition of EFECS will evolve around "Our Digital Future".

EDITORIAL INFORMATION

Online version is available at www.artemis-ia.eu

Publisher:
ARTEMIS Industry Association
High Tech Campus 69-3
5656 AG Eindhoven, The Netherlands

Design and Creative lay-out:
Studio Kraft – Veldhoven, the Netherlands

Text & copy:
CPLS – Goirle, the Netherlands

Printed by:
Drukkerij Snep - Eindhoven, the Netherlands

Photography:
With thanks to ARTEMIS involved persons for any assistance and material provided in the production of this issue.

With thanks to the interviewees, project participants, ARTEMIS Industry Association office, the ARTEMIS-IA Presidium and other ARTEMIS-IA-involved persons for any assistance and material provided in the production of this issue of the ARTEMIS Magazine.

Submissions:
The ARTEMIS-IA office is interested in receiving news or events linked to the aim of ARTEMIS-IA, related projects or in general: R&D in the field of Embedded and Cyber-Physical Systems area.
Please submit your information to info@artemis-ia.eu

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