# ARTEMIS MAGAZINE

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# **FOREWORD**

Dear participants in the ARTEMIS community.

In the end of December last year, it came as surprise for many of us that Laila Gide would step back as president of ARTEMIS-IA per February the 1st of 2018, due to her retirement at Thales.

In the meeting of the Steering Board of March 14, Jean-Luc di Paola Galloni (Valeo) was designated as her successor. He is interviewed by Chris Horgan in the first article in this Magazine.

Laila Gide was guest of honour in our Brokerage Event in Berlin, and our GA meeting on March 15. Michael Paulweber (from AVL), myself and Jean-Luc di Paola Galloni highlighted in these meetings the instrumental influence that Laila Gide had on the ARTEMIS Industry Association, culminating in leading the core-team of the highly praised common ECS-SRA by AENEAS, ARTEMIS-IA and EPoSS.

Patrick Pype succeeds Laila Gide as chair of the ARTEMIS-SRA and he will represent ARTEMIS-IA in the ECS-SRA-core team. Patrick is interviewed in this Magazine.

We hired Jan van den Biesen as consultant for ARTEMIS-IA to help shaping up our chances to get us involved in a successor programme after ECSEL in the FP9 timeframe. Jan looks back to the ECSEL mid-term review and looks forward to our chances for ECSEL2 in the future.

ECSEL for the first time organized an event in the Eastern part of Europe to increase its consortia footprint in Warsaw, Poland. You will find a report of this event.

ARTEMIS-IA has since a couple of years a very good relationship with the HiPEAC-organisation. You will find a contribution of the HiPEAC team.

Further EuroCPS, a H2020 funded projects, tells what they are doing.

As already highlighted in the previous Magazine, the ECSEL Lighthouses are new kids at the block and are still in a construction phase. In this Magazine you find interviews with Ovidiu Vermesan (from SINTEF) who contributed to the Mobility4.E event in Mallorca in January, and with Berta Ferrer Llosa who is involved in Mobility4.E from the ECSEL office.

Due to the fact that "Internet of Things" is one of the focus areas of ARTEMIS-IA, we, the ARTEMIS-IA association became a member of AIOTI (the Alliance of Internet Of Things Innovation). To improve the working relation with AIOTI, we started a new WG "From IoT to SoS", in which SoS means Systems of Systems. This new WG is chaired by Paolo Azzoni (from Eurotech). Paolo explains what the new WG is doing.

Mateusz Bonecki gives his view on the cooperation's on SME's in our community.

Finally, an impressing is given of a recent working lunch, organized by ECSEL on May 16, in the European parliament to bring our messages for FP9 that recently got the name "Horizon Europe".

I wish you an enjoyable read.



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Jan Lohstroh Secretary General of the Industry Association

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# NEW PRESIDENT TAKES OVER AT THE HELM OF THE ARTEMIS INDUSTRY ASSOCIATION

"TOGETHER WITH PARTNERS AND STAKEHOLDERS, JEAN-LUC DI PAOLA-GALLONI AIMS TO PUSH ON IN PURSUIT OF THE GOALS OF ARTEMIS-IA."

by CHRIS HORGAN

Following the retirement of Laila Gide, a new President has been chosen by the Steering Board of ARTEMIS-IA to carry on the important task of leading ARTEMIS-IA as a key partner in achieving the goals set out in the recently published ECS Strategic Research Agenda. Jean-Luc di Paola-Galloni, Group Corporate Vice-President of Sustainable Development and External Affairs at Valeo, was designated ARTEMIS-IA President on 14 March 2018.

# **ALIGNMENT TO CREATE STRENGTH**

Jean-Luc di Paola-Galloni sees his role as "continuing to bring to the attention of both European institutions and member states the importance of aligning their willingness to build strong actors in all application fields of cyber-physical and embedded systems". With the advent of FP9 [Framework Program 9], more than ever before, the electronic components and systems are at the core of the extremely strategic evolution of key application areas, such as smart mobility, energy, well-being, lifestyle services. "ARTEMIS-IA," he emphasises, "can exert its influence to enable European industry to be a leading player in the process of digitalisation within these highly competitive multiple sectors and fields of application."

## **IMPORTANCE OF TEAMWORK**

Having witnessed an industrial environment that has been through a massive 'electronisation' of its R&D processes, tasks and solutions, and with strong links with and influences from the fields of health, energy and digitalisation of manufacturing, Jean-Luc di Paola-Galloni will bring firsthand experience of the speed and the level of innovation, the global challenge of competitiveness, the constant improvements of the automotive sector to his role in which he aims "to work closely with the association structure and its very dedicated staff to pursue the most suitable form of joint action in this period of transition. I am bringing the experience of ten years in an executive



position at a growing and respected global automotive supplier and top innovator industry player".

# STRONG, CREDIBLE AND UNDERSTANDABLE

Within the European landscape, Jean-Luc di Paola-Galloni brings eight years of coleadership of a European Technology Platform and its related Public Private Partnership. "In Brussels I have learned to work with multi-research actors within the complex multi-country context and its related multi-DG spectrum. With many of our industries and research actors relying increasingly on cyber-physical and embedded systems, we clearly have to shape up our advocacy and secure a strong, credible and understandable influence among those who govern our dedicated Joint Undertaking. I would also like to pay tribute to Laila Gide for all her dedication throughout the many years she was active within ARTEMIS-IA, especially the last two years in which she had great impact as President during a period of increasing cooperation with AENEAS and EPoSS. I look forward pushing forward to pursue the goals she championed and to working with and counting on the strong dedication and support of ARTEMIS-IA, its partners and stakeholders."

# WELL CONNECTED

Since 2016 Jean-Luc di Paola-Galloni has been a member of the Steering Board of ARTEMIS-IA, and of the associations representing the industry and research actors in the ECSEL Joint Undertaking (the Joint Technology Initiative on Electronic Components and Systems in the EU). Additionally, he is member of the strategic group advising the board of CLEPA (European Association of Automotive Suppliers) and on 1 January 2018, he became a member of the Corporate Partnership Board (CPB) of the International Transport Forum (ITF), the formal mechanism of the OECD and Associated Countries Transport Ministers to engage with the private sector.

# BROKERAGE

by AD TEN BERG & CHANTAL SCHOEN



# **CALLS 2018**





As in 2017, also this year EPoSS organized it's Proposers' Day back-to-back on February 8 at the same venue, making it easy to attend both events. The ARTEMIS-IA Brokerage was preceded with the Workshop of Interoperability Coordination Forum, an activity of the ARTEMIS-IA Working Group Standardisation in the morning of February 6, for which 60 people registered. A detailed report is presented also in this magazine. From 302 registrations, we were happy to welcome 264 actual participants in Berlin which again is an increase over last years' Brokerage. We received visitors from 20

Brokerage. We received visitors from 20 countries, including some non-European countries. Besides the strong network of ARTEMIS-IA members, 41 non-members organisation and several national contact representatives joint the lively discussions around the topic of Embedded Intelligence.

After the opening and welcome by Ad ten Berg, the first keynote speaker in the event was Laila Gide, departing President of ARTEMIS-IA and chair of the SRA core-team of experts from AENEAS, ARTEMIS-IA and EPoSS. Laila Gide presented the brand-new printed book of the first SRA on Electronic Components and Systems, the ECS-SRA. The first batch of 250 printed ECS-SRA's was available for distribution at the Brokerage event.

On February 6 and 7, ARTEMIS-IA again held its Brokerage

event in Berlin, Germany, to prepare for the upcoming calls

for proposals in 2018 in both Horizon2020 and ECSEL

programmes.

Laila explained that this ECS SRA is not "yet another SRA", but the first common ECS-SRA from the ECSEL-JU Private members AENEAS, ARTEMIS-IA and EPoSS. This ECS-SRA and represents one voice on the complete ECS Value Chain. As Laila expressed its rationale; "The ECS Value Chain stands for everything "smart" and impacts all aspects of life and all industrial sectors".

Next, Simona Rucareanu, Call Coordinator of ECSEL-JU, presented the available information on the upcoming ECSEL-JU Calls in 2018, with special attention for the updates and changes with respect to the previous years. She advised to keep an eye on the call 2018 information at the ECSEL-JU website.





After a well-deserved coffee break that also served as kick-off of the intensive networking activities during the whole event, the programme continued with the project pitch session. Many interesting short pitches were given of 30 project ideas, as introduction for further discussion at the posters and in separate meeting sessions. Besides the organised project-meetings in four parallel sessions, the Face2Face locations in the exhibition area was used to the max.

The "Best Pitch" award election clearly concluded for the pitch "VRIDE" of prof. Pekka Abrahamson on "Virtual Reality as an Integrated Software Development Environment for Cyber-Physical Systems". Also the "Best Poster" award was won by VRIDE, with not only had a poster, but brought a complete demo to the poster exhibition.

This year's Brokerage facilitated for the first time a large demonstration area for the SME "Stolen Shoes entertainment". They are one of the partners in the project "VRIDE" to contribute with astonishing 3D-graphics and data visualization, They can deliver fast and very clear 3D-graphics for whatever needs

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"The ECS Value Chain stands for everything "smart" and impacts all aspects of life and all industrial sectors". or help visualize data the way you need it shown.

Just before the Networking Cocktail, the opportunity of this yearly gathering of many in the ARTEMIS community was taken to put the spotlight on Laila Gide, departing President of ARTEMIS-IA for all her efforts to support and drive the association right from its beginning in 2004. Both Jan Lohstroh and Michael Paulweber went back to all contributions Laila made to ARTEMIS, from its early beginnings until today. Right from its start, Laila always has been the chair of and driving force of the ARTEMIS Strategic Research Agenda Working Group, from the first ARTEMIS SRA in 2006 until the most recent in 2016 that was directly followed by the ECS-SRA in 2017, involving three associations and over 250 individual experts.

The networking cocktail was the ideal opportunity for a "meet and greet" and many took this opportunity to personally express a thank-you to Laila Gide. The next morning, the Brokerage continued with two keynote presentations. The first keynote on HiPEAC, a network of excellence in the area of High Performance Computing and Embedded Systems was presented by Koen De Bosschere, professor at Ghent University and Chair of HiPEAC. He especially explained the wide variety of activities of this networking organization with the links to industry. The next keynote was given by Margriet Van Schijndel, Secretary General of EARPA, the association for research partners in automotive. Margriet pointed out that EARPA plays a role in enhancing automotive networks and facilitates the forming of consortia and preparation of projects focusing on RTD and innovation in the automotive domain. EARPA also contributes to Horizon 2020 with position papers and participating in expert groups. Margriet also showed the EARPA members' participation in two recently approved ECSEL projects, HiPERFOM, PRYSTINE, SECREDAS and AutoDrive.

For the next session, Ad ten Berg invited all poster owners to be present at their poster and be ready to answer questions and further discussions on their ideas. In parallel there was the opportunity for consortia meetings of which some continued even after the closing session at 16:00 hours.

# NEW CHAIR FOR THE ARTEMIS-IA WORKING GROUP SRA

# DRIVING ONWARDS AND UPWARD WITH PATRICK PYPE REPRESENTING ARTEMS-IA IN THE ECS-SRA CORETEAM

# by CHRIS HORGAN

Patrick Pype, Senior Director of Strategic Partnerships and External Relations at NXP semiconductors and member of the ARTEMIS-IA Steering Board since 2015, has taken over the task left by Laila Gide as chair of the WG ARTEMIS-SRA and representing ARTEMIS-IA in the coreteam of the ECS-SRA that was published earlier this year. Patrick himself was co-responsible with AVL's Michael Paulweber for chapter 1 on Smart Mobility of the ECS-SRA. Some ECS-SRA-questions to the new ARTEMIS-IA representative:

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# So how do you feel about assuming this mantle of responsibility?

I must say it feels quite an honour. And, of course, a challenge because Laila has done so much work on this so It's going to be quite a job to continue where she has left off. Of course, it helps that I was so closely involved in the creation of the SRA in the first place, as co-chair of the Smart Mobility chapter.

# And where do you see the next step?

I see the SRA as an organic document and I think that each year we should update the document through a review, with more of an in-depth revision every two years. It's not only my view but this approach reflects the comments I have heard during previous meetings that it makes sense to regularly monitor developments and see whether things need changing.

# In respect of the SRA, has anything changed in the period during Laila's stewardship and how do you see your role?

Has it changed? I would say so, yes. When we first started working on the SRA, there were three industry associations, each with its own SRA. And now these separate documents have been merged into a single document with the merger to the ECSEL structure. I see this as a really important step forward. Laila was certainly one of the architects of this, and I fully support the creation of one SRA for the three industry associations. It is also a document used by the PENTA programme, by the National Public Authorities and by the European Commission and, of course by the ECSEL programme. To me it is vital that the characteristics and specificities of each industry association is contained in the umbrella document that is this SRA. That is my vision, in any case, a common vision that we can show to all stakeholders in Europe. For the European Parliament, for instance, there is the need to be able to see the overall picture without having to pick their way through the ins and outs of the three associations. So, one document that expresses a shared vision but which also contains the separate identities. My role is to ensure that the ARTEMIS community is well represented in this common SRA.

# *Is this the case at the moment?* I think so. The themes of the current SRA have a good mixture from all three industry



associations. It's important for the future that the people in our community are sufficiently motivated to ensure that the ARTEMIS needs are well covered in the SRA. We want to have a document that is accepted by all the respective stakeholders, especially from National Public Authorities and Europe. It's a must-have if we are to ensure that we have a decent programme on these topics in the future FP9.

# Is it true to say that this SRA is geared towards FP9?

Certainly. We are all hopeful that there will be an ECSEL 2 programme that will cover the activities of the current ECSEL programme as set out in the SRA. Also by choosing to work together with AENEAS and EPoSS, ARTEMIS can be a stronger force, and by acting together in ECSEL we have more to offer in the next framework programme and therefore have more opportunities. In that way, therefore, ARTEMIS can benefit from the critical mass of the greater whole.

# Where do you think the emphasis will lie in the next framework programme?

Societal challenges and needs will be at the fore. And this concerns emerging digital and smart environments. Automation and autonomy, which we see in production and mobility, will be key topics. Autonomous Driving needs top priority and we should maybe consider an Industry 5.0. Healthcare is becoming an increasingly important area, also in respect of digitalisation and smartness, especially as we emphasise the pro-active perspective instead of the re-active healthcare we currently know. Security will be of crucial importance as a horizontal technology requirement throughout these applications. These items are all covered in the SRA and they will all become more and more important as they become increasingly application-driven. We have to make sure as the ARTEMIS community that we can deliver the required technology in terms of both hardware and embedded software as well as system integration in order to tackle these societal challenges.

Where do you see the future of the SRA? Well, first of all, I hope that the group of people who worked so hard and well to produce the current SRA will be keen to continue working on the future versions of the SRA. Of course, people will come and go - so that's an organic process - but the way that everyone came together for the greater good is something I would like to see carry on. The ten chapters we currently have cover the needs guite comprehensively but in two years' time we will look closely at their relevance and value in the context of that point in time. But while it will be a valuable exercise to bring in new views, new visions and fresh ideas – the world is changing and we have to adapt to it - in terms of the SRA structure I don't anticipate there being fundamental changes to the chapters we now have. After all, you don't change strategy every year, do you?

# And where do you see yourself in two years' time?

I hope still to be helping to lead the work. It's challenging, as I said, and now and then I will have to burn a bit of midnight oil, but the rewards of succeeding are a great motivator. Although it's still fairly early – I've only been standing on the bridge, as it were, for a short time – I'm in it for the long run. I'm committed to collaborating with the talented and committed people involved in the working groups and I'm convinced that we will continue to develop and produce the kind of SRA that supports our ambitions.

# ECSEL: THE MID-TERM REVIEW

# AS SEEN THROUGH THE EYES OF JAN VAN DEN BIESEN

y CHRIS HORGAN

ARTEMIS Magazine 24 June 2018

In the early 1990s Jan van den Biesen began liaising with Dutch public authorities regarding Philips' participation in national R&D programmes, in 1997 becoming responsible for developing Philips' global policy on publicly funded programmes for collaborative R&D, since 2000 as Vice President Public R&D Programmes. Until retiring, in April 2017, he was a Vice President of the Steering Board of the ARTEMIS Industry Association and a member of the Management Committee of the AENEAS Industry Association, the Research and Innovation Working Groups of BUSINESSEUROPE and DIGITALEUROPE and the Technology & Innovation Committee of VNO-NCW. Having been closely involved in setting up both the ARTEMIS and ECSEL Joint Undertakings, and currently a member of the ECSEL Governing Board, who better, then, to help consider the prospects and positioning for the ECSEL Joint Undertaking beyond the 2020 Horizon.

When I retired from my position at Philips, I felt my experience and expertise still had a lot to offer so I set up EUROPOLARIS, an acronym for EUROpean POLicy Advice and Research & Innovation Strategies. So it was in this capacity - providing advice on research innovation policies as an independent adviser - that I had been invited to consider the positioning of ECSEL and its prospects for the future. My role here is to help the three industry associations that make up the private side of ECSEL (ARTEMIS, EPoSS and AENEAS) prepare for the next phase, ECSEL2, as part of the ninth EU Framework Programme (FP9) for research and innovation (R&I), the successor to Horizon 2020. At the same time, we are also working on intensifying the collaboration between the three associations. Of course, we have to



ensure that there will be an ECSEL2 and to this end a joint position paper was launched on 1 December last year. This policy focused document outlines the prospects and perspectives for ECSEL beyond the 2020 horizon.

## **UNIQUE FUNDING STRUCTURE**

While ECSEL2 can be seen largely as a continuation of ECSEL1, we are conscious of the need for improvement, change and growth. We would like to broaden the scope, in which parts of the photonics, robotics and Internet of Things domains could be more inclusive elements, and we would certainly welcome a strong involvement of industry as co-investor, since ECSEL is and will remain

industry-driven. Furthermore, the co-funding mechanism will be a very important topic. I should point out that we have a quite unique tripartite funding structure at the moment in which the resources from the European Commission, most of the Members States and a few other countries on the public side and the constituencies of the three associations and other R&I actors on the private side are pooled in order to implement our strategic research and innovation agenda. Looking at the report on maximising the impact of EU R&I programmes that was written by the high-level group headed by Pascal Lamy, I think we are very well positioned. They see the need for better alignment between EU and national polices and efforts by means of a simple co-funding mechanism whereby national and private investments are leveraged to implement research and innovation programmes. This is exactly what ECSEL is doing right now. The co-funding mechanism is in place and we have the JU to implement it. But while it is working well, it could certainly benefit from further simplification and streamlining. The funding rates should be better aligned between the participating states, along with the procedures, the requirements and the timing. This would improve the efficiency of the co-funding mechanism. And another ingredient would be to have more multiannual financial commitments from the participating states rather than the current year-by-year mechanism.

#### **SPEAKING WITH A SINGLE VOICE**

The common Strategic Research Agenda (SRA) for the domain of Electronic Components and Systems (ECS) published by the three associations in January can be regarded as a launching pad or springboard for the remainder of ECSEL1 and the transition to ECSEL2. In terms of content, the road ahead is clear – this is described in detail in the common SRA, which is the result of the increasingly closer collaboration between the partner associations and the involvement of over 200 of their experts. We have the position paper and there are regular meetings to discuss common issues and activities regarding what has to be done. The EFECS event in Brussels in December last year is another expression of the growing sense of a strongly aligned ECS industry, one that has found its voice and is gaining critical mass and influence.

## **POWERFUL TOOL**

Although it's still fairly early in the process, I think that the prospects for ECSEL2 are looking bright. Whereas it's up to the Commission to come up with a legislative proposal, probably after the elections for the European Parliament in May next year, the Commission does appear to be convinced that ECSEL has a very powerful formula that needs to be continued after 2020. There also appears to be strong interest among the participating states for this continuation. We are also hopeful that there will be a sufficiently substantial budget in FP9 to continue – ECSEL2 will need at least as much as the current budget, certainly if the scope is to be extended. ECSEL provides a powerful tool that is already delivering in terms of industrial competitiveness, creating economic value and having impact on society. ECS is a key enabler for the digitisation of European industry, a major initiative launched by the European Commission two years ago, and the technologies in the ECS domain are crucial in addressing the identified societal challenges. What's equally important is that we are helping to establish an effective innovation ecosystem that includes large companies, SMEs, universities and research institutes.

## **POSITIVE NOISES**

The noises from the mid-term review are very positive. ECSEL is well positioned to have significant and meaningful impact on both the industrial and societal front. There appears to be positive backing from the Commission, participating states and industry to push on with implementing the strategic plan. Of course, there is always room for improvement and the mid-term review pointed to a need to harmonise and synchronise rules of participation and procedures, and to place greater emphasis and target resources on coverage of the value chain, particularly with respect to systems. Also, appropriate metrics that can better assess the impact of projects would be beneficial and SMEs and start-ups would gain from more targeted support. In all, there are 15 strategic recommendations and an action plan has been drawn up to address these issues. In addition, we have to convey the impact message in such a way that even though ECS is something that is under the hood, if we take the automotive analogy, the results of ECSEL projects are conveyed in such a way that they actually become visible to citizens and consumers, so that they realise that so much of what we take for granted in our daily lives (under the hood) would not be possible without ECS in general and the results of ECSEL in particular.

# SOVEREIGN ACCESS

ECS is important for driving innovation and digitalisation in any industry, also in the services sector, and in view of all the increasing protectionism we see in a changing and sometimes unpredictable world, it is vital for Europe to maintain its sovereignty in this respect and to have access to these crucial technologies. The road ahead has been mapped out and ECSEL2 will be an essential means of translating ECS technologies into the applications of the future for the benefit of industry, economy and society. The Lighthouse Initiatives recently established by ECSEL could even play a pivotal role in the mission-oriented approach envisaged for FP9.

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# ECSELCALL FORUM

*by* **THE ECSEL-JU OFFICE** Photos by Alun Foster, ECSEL JU and Lech Trzeciak, Cezamat

The ECSEL JU "Call Forum 2018" this year was co-organised with CEZAMAT, the Centre for Advanced Materials and Technology in Poland, and with the Industry Associations AENEAS, ARTEMIS-IA and EPoSS. It took place on 6-7 March 2018 at the impressive site of CEZAMAT in Warsaw.





## ABOUT ECSEL JU

The "Electronic Components and Systems for European Leadership" (ECSEL) is a Joint Undertaking established in June 2014 by the European Union Council Regulation No 561/2014. It is a public-private partnership that will engage, for 2014 to 2020, up to 1.17 billion euro funding from the European Union's Horizon 2020 research and innovation programme, combining it with a commensurate amount of national/regional funding and participants' own contributions to leverage about 5 billion euro Research and Innovation investments in nanoelectronics, embedded and cyber-physical systems, and system integration technologies. The R&D actors are represented by the associations AENEAS, ARTEMISIA and EPoSS.

The conference was attended by about 180 guests from such countries as: Belgium, France, Great Britain, Italy, Spain, Portugal, Germany, Switzerland, Austria, the Netherlands.

For the first time, ECSEL JU decided to organize an event in Poland aiming both at the presentation of ECSEL JU and CEZAMAT to a broader European audience, as well as encouraging Polish researchers and companies to participate more often in ECSEL JU projects.

Vice-Rector for Research, prof. Rajmund Bacewicz, of Warsaw University of Technology opened the event, while Marcin Ociepa, Deputy Minister of Entrepreneurship and Technology for Poland, also addressed the attendees of the conference. Their messages stressed the importance of the ECS technologies in advancing the benefits important for society, and also called on the traditionally strong Polish academic community to step up alongside their European colleagues in supporting these innovations.

March 6 was a day dedicated to acquainting the guests with the importance of driving up R,D& I in the electronics sector, how this is presently addressed in Poland and by the activities of ECSEL JU, and on the mechanisms of applying for funding of projects within the ECSEL JU program. The activities of CEZAMAT were presented by prof. Tomasz Skotnicki. Mateusz Bonecki from Better Solutions, a Polish SME and already successful participant in ECSEL JU funded projects, introduced the participants to the role of ECSEL JU in Poland. In turn, the possibilities of participation in the ECSEL JU were presented by the Executive Director of ECSEL JU - Bert De Colvenaer and as well as Head of Programmes Dr Yves Gigase and Call Coordinator Dr Simona Rucareanu.

# ABOUT CEZAMAT

The Centre for Advanced Materials and Technologies (CEZAMAT) is one of the largest investments in Poland in the field of high-tech research and development. Co-funded by the European Union, the project envisages the establishment of the network of five laboratories equipped with state-of-the-art R&D tools. Laboratories of the Center will allow to carry out new marketable technologies with commercial potential which are supposed to contribute to economic development.

As a link to the activities of the second day, Caroline Bedran, Director General of the AENEAS Association, gave insights into the activities of the Industrial Associations participating in ECSEL JU, how they work to build communities around the important topics addressed in the European Strategic Research Agenda, which is referenced by the ECSEL JU and other European programmes in their work plans, as well as introducing the on-line tools offered to help consortia in preparing their ideas for projects.

The second day of the event, organised by the three participating Industry Associations, was devoted to facilitating industrial consortia, starting with a high-level speech delivered by Mateusz Gaczyński, Deputy Director of the Department of Innovation and Development at the Ministry of Science and Higher Education of Poland. There were also presentations of projects ideas and potential partners, above all facilitating multilateral meetings in order to build strong project consortia. Guided tours of the facilities of CEZAMAT were organised by prof. Tomasz Skotnicki and prof. Romuald Beck, positioning CEZAMAT as a focal partner for potential projects and further cooperation with the broader Polish RD&I community.

The conference was attended by about 180 guests from such countries as: Belgium, France, Great Britain, Italy, Spain, Portugal, Germany, Switzerland, Austria, the Netherlands. A large percentage of participants are representatives of Polish R & D units, SMEs and companies. The highest authorities of the co-organisers all rated the event highly, and concluded that it was a success.

HiPEAC has joined forces with ARTEMIS to help the European embedded intelligence sector get even smarter. Established in 2004, the HiPEAC network brings together leading experts in computer architecture and compilation, spanning the spectrum from high-performance computing to cyber-physical systems.

# EMBEDDED INTELLIGENCE GETS SMARTER THANKS TO HIPEAC AND ARTEMIS

# by THE HIPEAC TEAM



As ARTEMIS members will be well aware, digitization, through the internet of things (loT), Industrie 4.0 and initiatives such as the European Commission's Smart Anything Everywhere programme, is the future. It has the potential to transform whole sectors, reinvigorate European industry, create hundreds of thousands of jobs and ensure Europe's competitiveness in the global market.

However, without computing expertise, initiatives like these will fail to deliver their full potential. Modern processing systems are increasingly complex, and inefficient software will lead to the accumulation of technical debt and failing systems – not to mention security, safety and privacy issues. This is increasingly problematic as computing becomes more and more ubiquitous, becoming part of our everyday lives in ways we couldn't have imagined a decade or so ago.



"HiPEAC allows us to keep up to date with current research into areas of business interest and monitor future trends. It also allows access to relevant research and potential student internships."

Glenn Farrall, Senior Principal Automotive MicroControllers, Infineon Technologies UK Whether you want to keep up to date with the latest technology developments, find specialist staff for your business or identify partners for a European-funded project, HiPEAC is here to help. As an initiative funded by the European Commission, HiPEAC membership is free of charge and offers a wide range of benefits, a few of which are detailed below. Membership is on an individual, rather than institutional, basis. To become an industry member, simply email membership@hipeac.net with a brief biography, explaining why you would like to join HiPEAC.

# **NETWORKING OPPORTUNITIES**

A first step to getting closer to the HiPEAC community could be attending one of our four annual networking events. From the HiPEAC conference in January, which brings together around 550 computing experts, to themed Computing Systems Weeks in spring and autumn, to the ACACES summer school in July, there's something for everyone. You can take part in a workshop, pitch your company to students (more on this below), showcase your products and services in the industry exhibition or form part of a judging panel for leading-edge technology ideas. Our next event is Computing Systems in Gothenburg on 22-24 July; with a theme of innovation, this offers workshops in bringing IoT technologies to market and venture creation, along with parallel sessions on RISC V, machine learning and energy-efficient computing. For the full programme, visit the HiPEAC website.

# GET THE SPECIALIST STAFF YOUR COMPANY NEEDS

One thing that we've seen in HiPEAC time and time again is that organizations looking to recruit new staff in computing systems often have problems finding candidates with the specialist skills they need, such as in cyber-physical/embedded systems, or advanced computing professionals. Likewise, researchers and engineers who have worked hard to develop skills in niche areas often experience difficulties in finding out when and where suitable jobs are available.

In response, we created the HiPEAC Jobs portal to bring recruiters and candidates together. Used by well-known companies in the embedded intelligence domain, including Thales, Honeywell and TTTech, the



Jobs portal has been going from strength to strength.

## **HOW DOES IT WORK FOR RECRUITERS?**

Simply create an account and log in to the HiPEAC website in order to add a new job or internship. You complete a simple form with the details of our vacancy – which must be based in Europe and relate to computing – and your job will be advertised on the portal.

Vacancies posted on the portal are visible to thousands of computing systems researchers, universities, doctoral students and professionals across the world, both through the portal itself and via our mailing lists, social media accounts, events and newsletters. You certainly don't have to be an HR professional to use the portal – in fact, we see the tool as being ideal for the researchers and other individuals in companies who need to recruit staff for their teams.

## **HiPEAC industrial internships**

To further support companies and researchers looking for development opportunities, HiPEAC organizes annual mobility placements. Every year, HiPEAC companies are invited to submit internship proposals detailing a project they'd like a PhD student to work on. Students are then invited to apply for these opportunities. As well as matchmaking students to internship proposals, HiPEAC offers funding to cover the cost of internships at small and medium enterprises (SMEs).

The next call for internship topics will be in early 2019, but in the meantime you can post internship opportunities on the HiPEAC Jobs portal. Find out more on the industrial internships webpage.

## **HiPEAC Careers Centre**

To complement the Jobs portal and mobility programme, HiPEAC organizes a series of mentoring activities for students, as well as taking our careers centre on the road at different events.

Pitch your company's vacancies at a HiPEAC Inspiring Futures event attended by local students or join a roundtable session at the HiPEAC summer school, ACACES, which attracts over 200 attendees. Participate in the HiPEAC conference industry exhibition and we will bring computing students to your stand. Or simply upload your vacancy to the jobs portal and we will display it at our travelling careers unit, featured in the HiPEAC booth at major international conferences such as DATE and ISC HPC, as well as at HiPEAC's own events.

If you're organizing a technical event, careers fair or summer school and would like HiPEAC to organize a careers-focused event, or if you have any other query related to recruitment, we'd love to hear from you. Email recruitment@hipeac.net

Looking for your next opportunity? Over the last two years, over 1,000 opportunities for all career levels have been showcased on the HiPEAC Jobs portal. Be the first to see all the latest vacancies by following @hipeacjobs on Twitter or subscribing to our LinkedIn page.

Want to find out more about what HiPEAC can do for you? Have a look at the benefits of industry membership on the HiPEAC website, and contact us via info@hipeac.net if you have any queries.

https://www.hipeac.net/ https://www.hipeac.net/jobs/ https://www.hipeac.net/mobility/internships/

# EURO CPS

by ISABELLE DOR



EuroCPS (2015-2018) is a European H2020 funded project designed to help innovators (start-ups, SMEs, midcaps and large companies) to overcome barriers thy face when entering new markets, by providing technical expertise, coaching and access to advanced Cyber-Physical System (CPS) platforms. It gets innovators up to speed on the innovation ecosystem of "smart" products by facilitating access to the latest technologies and their implementation. It also taps existing regional ecosystems in several countries to bring the full value chain - from hardware/software platforms to cyber-physical systems - to high valueadded products and services. To support the innovation by bringing expertise, know-how and technological bricks, EuroCPS includes renowned research centres and academia; CEA-FR, Fraunhofer-DE, BME-HU, Lulea University of Technology-SE, Digital Catapult-

people, but also a couple of start-ups and one large SME. These companies come from 11 countries among which two countries outside EuroCPS core countries. EuroCPS has enabled more than 70% of success stories with a large variety of outcomes. Among them let us mention the development of a secure system to monitor medical sample through the lab based on RFID tagged for test tubes and sample holders, the design and building of a low-cost sensor to monitor highly variable and critical parameters (air temperature and humidity, soil moisture) in order to reduce the use of pesticides, or the development of a teaching system based on innovative solar sensors combined with interior and exterior metering point in order to teach building heating system to respond to the weather and therefore cut energy consumption for heating and cooling by up to 8%. The demonstrators or proof of concept a use case we received from our partner, from Thales. And with this use case, we really had a proof of concept of the technology on a real life case". Rabih Chrabieh, from Nestwave, underlines "the EuroCPS program helped us to get access to an expert RFID which enabled us to accelerate our development. This is very important for us that our product can go faster on the market"

EuroCPS is part of the Smart Anything Everywhere initiative (www.sae.com) which a key element of the Digitizing European Industry Strategy launched by the European Commission to ensure that any industry in Europe – big or small, whatever situated and in whichever sector – can fully benefit from digital innovation to upgrade its products, improve its processes and adapt its business models to the digital age. EuroCPS project

"the EuroCPS program helped us to get access to an expert RFID which enabled us to accelerate our development. This is very important for us that our product can go faster on the market"

Rabih Chrabieh, from Nestwave

UK, University of Bologna-IT, HTNL-NL. The industrial platforms provide state of the art technologies and therefore comfort the maturity of every granted project thanks to the foremost industrial partners of EuroCPS; STMicroelectronics-FR/IT, Intel-IE, AVL-AT, Thales-FR, Finepower-DE and Infineon-AT.

EuroCPS, through three open calls, has granted 34 projects enabling European wide collaborations, resulting in 82% of the projects having a relevant dimension, being executed in collaboration of partners from at least two different EU member states. The granted projects cover applications from any sectors, from smart health to smart agriculture, through smart energy, smart transportation, etc. The innovative companies involved in EuroCPS are, in a large majority, small SMEs less than 15

resulting from EuroCPS collaboration and funding have been key to increase business with existing customers. They have enable to open new markets and to attract new customer, yielding creation large business opportunities and revenues boost. For other projects, demonstrators have been a core component to attract investors or to secure national or international funding, a major element to build joint collaboration between research centre and an innovative company, an undisruptable step to join larger collaboration program (European or national/regional ones). EuroCPS project was a major trigger before going to the market. Interviewed Ben Rodriguez, from Hipperos, says that "on the one level, the program allowed us to build yet another block of our solution on a very industrial, very interesting platform. On the second level, we also had

is followed by FED4SAE (2017-2020) which aims equally at accelerating European CPS and Embedded Systems solutions to market by connecting DIHs across Europe with strong experience in R&D and innovation management to lower technical- and market entry barriers and accelerate the product development cycle for novel CPS and Embedded System solutions, more at www. fed4sae.eu.

Find out more on EuroCPS website and discover EuroCPS' success stories and videos at www.eurocps.org.

EuroCPS project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 701708

# THE LIGHTHOUSE MOBILITY4.E

# ASSEMBLING THE 'BUILDING BLOCKS' IN THE VISION OF SMART MOBILITY

by CHRIS HORGAN

In the previous ARTEMIS magazine, Reiner John was firm in his assertion that 'without digitalisation and connectivity there is no automated/autonomous mobility.' At the Roadmap Workshop for Human Centred Mobility speakers from H2020 and ECSEL projects were asked to share their innovative views and stimulate a new way of thinking aimed at leading to the mobility revolution. So how well illuminated is the path to making this happen?

"A real breakthrough that came about at the ECA2030 Roadmap workshop held over two days on the island of Mallorca at the end of January last," says Ovidiu Vermesan, Chief Scientist at SINTEF DIGITAL in Oslo and an authority on all things IoT. This workshop focused on the next evolution cycles, technology gaps and limits of today's technologies to pave the way for the electric, connected, automated car for the 2030 customer.

The two days of discussions targeted six urgent priorities, or building blocks: data availability and sharing; intelligence on board; infrastructure and services for smart personal mobility and logistics; decarbonisation for clean, sustainable affordable propulsion; connectivity; sensors and sensor fusion. Bert de Covenaer, ECSEL Executive Director, in his opening words in Mallorca suggested that "given the trend towards mobility on demand, the future user will only be willing to pay for the service he or she uses. This means that a need for co-mobility will emerge and, as a consequence of this disruptive change, we need to define not only the requisite technology basis but also identify possible gaps to gain and keep both sovereignty and IP to build our cars in and for Europe."

"We want to get the level of security in the automotive industry up to the level we see in the aviation industry."

# ENHANCING MOBILITY

With an ambitious aim of making the electric, connected and automated car mainstream in 2030, the Mobility 4.E Lighthouse Initiative builds on well identified market-pull related to social needs and comprising a strong pan-European dimension. Essentially, this means that around half of the annual global manufacturing volume of more than 80 million conventional cars will be sustainably produced ECA cars in 2030. Cars that reduce our ecological footprint and turn driving into a service that gives the consumer more time for other activities: eating lunch in a relaxing way, having a drink, listening, talking, surfing or phoning. In this clear shift that is emerging towards mobility, in other words, connections, it is not so much a matter of putting more vehicles on the road but of optimising their use to enhance the flow of people and goods. So it is important that the Mobility4.E Lighthouse Initiative signposts the relevant peripheral challenges like standards, rules, regulations, legislation, liability and obligations, and that these issues are tackled just as effectively as the technology challenges.

# HIGH EXPECTATIONS

"If we can do this," De Covenaer concluded, "we can help to sustain leadership in Europe and sustainably boost economic growth and prosperity as well as quality of life." All car manufacturers, public authorities, and other stakeholders are in agreement that (cooperative) driver assistance, active safety systems and automated driving functions are vital to achieving Europe's vision 2021 and the long-term goal of zero fatalities, zero injuries and zero accidents. The European Commission's Francisco Ibanez explained at ECA2030 that the lighthouse initiatives were expected to provide direction, improve cohesion, maximise impact, align with policy and provide a full patch through the innovation cycle. In shortly, then, the expectations of the potential of the lighthouses as strategic initiatives are high. Pushing research forward, finding value beyond the projects and searching for more benefits and impact.

## **LIGHTHOUSE PILLAR**

In this sense, AutoDrive is a major pillar in the Mobility.E Lighthouse Initiative, supporting efforts towards future autonomous transportation, including infrastructure. Apart from the technical aspects it focuses on areas such as safety and security, connectivity, standardisation and regulation whereby public-private interaction is essential for finding workable and most advantageous solutions. Ovidiu explains that the next wave of projects will be geared to brining this autonomy to a level whereby safety and reliability - the crucial factors in autonomous driving - are facilitated by failfree technologies. "We want to get the level of security in the automotive industry up to the level we see in the aviation industry. What is needed now is a paradigm shift from internal combustion to fully-electric vehicles. And this, of course, entails a lot of development, in terms of the architectures for the powertrains, battery management, microcontroller and ECU functions. Safety is paramount, particularly where autonomous vehicles are concerned. For example, in recognising objects - animate or inanimate in all kinds of environments and conditions." And in the light of recent accidents and even fatalities involving autonomous vehicles, "it is vital to understand exactly where the errors occurred," Ovidiu says, "was there human error, were the right cameras and sensors - lidar, radar, ultrasound, infrared - present and were they performing correctly? Then we come to how the information is processed into the action that is taken. In normal operation the car is in interaction with all kinds of objects and has to predict what is often unpredictable - the sudden movement of a person or animal crossing its path." The issue of 'awareness' is, as Reiner has already

"We can only truly go forward if we can provide an environment for 'free flow', where the platforms are the same, whether you're in Sweden, Spain or Slovakia."

suggested, vital and it is in the area of selfawareness, self-organising, self-learning capacity ... where we need to make progress before we can truly automate."

### FREE FLOW

The autonomous or self-driving vehicle environment is highly competitive, involving as it does players not traditionally part of the automotive domain, like Google or Uber. Such an environment of diversity can, however, work to the advantage of all the players in it. There are opportunities for knowledge sharing, for instance. However, Ovidiu makes the point that "we need standardisation and governance. The most recent highly publicised fatality occurred in Arizona, where the regulations are a little more relaxed regarding autonomous vehicles. So there is a real need for standardisation to make the requirements for validation and testing the same everywhere."

While progress, with hiccups, is being made on the technology front, there is still much work to be done on regulatory and legal frameworks to ensure that safety can indeed be guaranteed. But this is, of course, an integral aspect of the Lighthouse Initiative, to signpost the relevant peripheral challenges. "We can only truly go forward," Ovidiu suggests, "if we can provide an environment for 'free flow', where the platforms are the same, whether you're in Sweden, Spain or Slovakia. This is, in fact the whole aim of the lighthouse: to create the framework for collaboration and cooperation so that we can find and fill in the gaps, stimulate innovation and generate the projects that will facilitate this. AutoDrive is a prime example. It takes a holistic perspective, from electronics to systems, advancing the fail-aware, fail-safe and fail-operational electronic components, systems and architectures that are essential in making future mobility safer, more efficient, affordable and end-user acceptable."

# LIGHTHOUSE INDUSTRY4.E

by CHRIS HORGAN

Berta Ferrer Llosá is ECSEL programme officer with a specific focus on the Industry4.E Lighthouse initiative. Here she outlines the goals and issues targeted by the initiative, its current status and what it has already achieved so far.

Of course, the Lighthouse Initiative concept is quite new and has been well received by the community. The concept was introduced by ECSEL Joint Undertaking to signpost specific subjects of common European interest, which calls for well-coordinated activities. And Productive4.0 is one such project that will contribute to standardisation and assist in the uptake of technology to address societal challenges. In the field of Digital Industry, the ECSEL Lighthouse Initiative Industry4.E pulls together the necessary work that is central to the digitalisation of industry. It is vital

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for production industries' competitiveness to have more and more IT and ECS driven know-how, based on platforms, standards and appropriate safety certification. It is therefore crucial to overcome the fragmentation that stands in the way of reaping the full benefits offered by digitalisation. So Industry4.E will address these issues and create an umbrella for all activities in the field of Electronic Components and Systems related to Industry Digitalisation, as well as a communication platform for all stakeholders to facilitate cooperation and reduce fragmentation.

#### UPTAKE ACCELERATOR

Lighthouse Initiatives are largely based on the idea of 'better European cooperation', part of the ECSEL slogan. They are intended to be an umbrella for all Industry Digitalisation related activities in the field of Electronic Components and Systems. The idea is to learn from each other, to find technological overlap and create synergy in order to accelerate through the transfer of knowledge. Importantly, the Lighthouse also aims to provide a link to respective national and regional activities in the field and ensure that the results have an impact on society and act as an uptake accelerator of project results. So the goal of a Lighthouse project is to provide the partners with the fundamental tools and innovations that are necessary to translate the potential generated by the digital revolution into real business success. This means being 'hands on' and close to the market.

## PRODUCTIVE4.0

We have kicked off the initiative with a great project called Productive4.0, the biggest of its kind in Digital Industry, with 108 partners from 19 countries and a budget of €106 million. It is a three-year project that has been running for a year and is now starting to deliver some really practical innovations. It was even nominated for a major award in Germany, the renowned Diesel Medal. The main objective of Productive4.0 is to help European industry digitalise better through electronics and ICT. It addresses various industrial domains with one and the same digitalisation approach. But what makes the project unique is the integrated system approach of consistently focusing on the three main pillars: digital production (DP), supply chain networks (SNC) and product lifecycle management (PLM), all of which interact and influence each other.

## OPEN SHOP

This is part of the new concept of introducing seamless automation and network solutions as well as enhancing the transparency of data, and assuring their consistency and overall efficiency. And currently, only ECSEL can provide the vehicle for such a complex project. The consortium consists of 45% AENEAS, 30% ARTEMIS-IA and 25% EPoSS partners, so it brings together all ECSEL communities. As such, it's a perfect example of what the Lighthouse Industry4.E initiative is all about. So when in March this year the Productive4.0 community met at its General Assembly in Athens, it was not only about taking stock of progress but also on potential cooperation opportunities with other projects. After all, ECSEL projects are not closed shops, they are open and part of one common aim: to prepare

the European industry for the future. Which brings me to the Lighthouse notion.

## PARTNERS FOR PACKAGES

So how does that work in practice? Well at the Productive4.0 annual conference three other projects – not under the auspices of Lighthouse Industry4.0 – stood out as being suitable Productive4.0 work package partners. Far-Edge, which is geared to factory automation, edge computing and operating system, and I-Mech, whose focus is on developing an intelligent motion platform for smart mechatronic systems, were earmarked as partners for Productive4.0 work package 1 (architectures and concepts, Arrowhead framework) and that are relevant to Industry4.E like AIOTI, the Alliance for the Internet of Things Innovation. We also want to seek collaboration with the European Institute of Innovation and Technology (EIT) that has created knowledge and innovation communities (KICs), one of which is added value manufacturing. So we're looking to bring all of these under the Industry4.E umbrella. By doing this we can tackle the issue of fragmentation. And in this respect, I would like to highlight the fact that ECSEL is unique in another way: in being the only party to have national funding authorities embedded in its governance structure. Our 'umbrella' will be founded on three axes: R&D&I and cross-cutting content, community building and visibility. As a Lighthouse, we want to be a communication

The idea is to learn from each other, to find technological overlap and create synergy in order to accelerate through the transfer of knowledge.

Semi40 – semiconductors and electronics – as a partner for work package 8 (automation and digitisation pilot lines). Part of the cooperation will be the exchange of results, deliverables and documents as well as common workshops, conferences and other events. Follow-up activities on identified cooperation are already taking place with partners eager to get in touch on specific topics.

## UMBRELLA

Such cooperation extends beyond ECSEL to other programmes like H2020, Factories of the Future and EUREKA. We are currently establishing links with the Cybersecurity, Big Data and Robotics PPPs as well as others platform and dissemination channel, not only for the members, partners and stakeholders but also in a much wider context – to the general public. We are doing this through various channels, from conferences and workshops to the ECSEL and project websites.

The Lighthouses, and we now have three – Mobility, Industry and Health – have been 'built' for the long term. We don't want them to stop after Horizon 2020. We hope that Horizon Europe will reaffirm the support that Europe is giving to the field of Electronics Components and Systems and, in this case to the Lighthouses and Industry4.E.



# WORKING GROUP FROM IOT TO SOS

#### by **PAOLO AZZONI**

The new Artemis Working Group "From IoT to SoS" has been recently established to follow and study the evolution of Internet of Things towards System of Systems. The Internet of Things (IoT) is a technology that enables heterogeneous and distributed objects to physically and/or virtually connect, communicate and cooperate. IoT is also a more conceptual approach that can be adopted to solve classical problems with a new recipe based on advanced devices and sensors, connectivity, interoperability, embedded intelligence, security, actionable data streams, delocalized computation, and agile business models. IoT represents an enabling factor for the creation of complex information systems, where the individual components are complex systems themselves, that is SoS. The concept of "Systems of Systems" is widely used in science and industry, with different connotations focused on engineering methodologies, social aspects, business models, legacy support and vertical domains. Among these, a shared connotation considers SoS as the result of the dynamic cooperation of distributed and heterogeneous systems to achieve common objectives and provide new rich functionalities. SoS

frequently combine constituents, information and functionalities from multiple domains and sources, leading to the further evolution step of connected domains. Connected domains represent a cross dimension of SoS and create a wider shared understanding of the context and situation, producing more useful services, richer functionalities, better user experience and value proposition. This evolution step could involve real verticals as well as virtual domains, allowing applications and services to extend beyond the traditional perimeter of the enterprise and across time and space.

ARTEMIS vision that mankind should benefit from a major evolution in our society is strongly supported by Cyber Physical Systems, IoT and SoS. This vision inspired ARTEMIS since the very beginning and Artemis-IA played an important role in the definition of a strategy that, during the last decade, has written part of the IoT history. Nevertheless, the IoT evolution to SoS is just at the initial stage, requiring further research and innovation, and many questions are still fully open.

How IoT will evolve? What driving factors will influence its evolution? How Embedded

Systems and CPSs will contribute to create Systems and Systems of Systems? Are IoT technologies SoS enablers? What challenges this evolution will introduce? Which business models will be capable to sustainably support IoT and SoS?

The Working Group "From IoT to SoS" will try to answer these questions focusing on the driving forces that will influence the evolution from IoT towards SoS: pervasive technologies, digital platforms, global standards, data governance, engineering tools and business models. The WG will contribute to the strategic documents of ARTEMIS-IA and ECSEL JU and will create an IoT/SoS knowledge base, oriented to develop an ARTEMIS-IA opinion on selected IoT/SoS subjects. The WG will promote interdisciplinary research, to reduce the diffidence towards IoT/SoS and inspire new research and innovation projects. Eventually, the WG is also trying to seek and establish contacts with important IoT/SoS players and, in this context, it is organizing in cooperation with The Alliance for the Internet of Things Innovation (AIOTI) an IoT workshop that will be held during the "IoT Week" 2018 in Bilbao.

#### ARTEMIS Magazine 24 June 2018

# OPENING NNOVATION FOR SMES

by MATEUSZ BONECKI

The vision of the European electronic components and systems industry builds upon principles of openness: the ECS innovation ecosystem established around key funding mechanisms invites large enterprises to open their innovation processes and engage in cooperative R&D to benefit from diverse technology in-sourcing and out-sourcing streams, while absorbing academic knowledge and creating new business opportunities for small and medium-sized enterprises. As far as the latter is concerned, in the last year ARTEMIS Industry Association together with other actors in the ECS domain have taken steps in order to unleash the innovative potential of high-tech SMEs.

# FROM COOPERATIVE R&D TO NEW MARKETS

At the Digital Innovation Forum 2017 in Amsterdam, organised by ARTEMIS and ITEA3, in the "Digital Transformation" panel session, we discussed opportunities resulting for SMEs from their participation in ecosystemic R&D projects such as CRYSTAL, EMC2, or – the most recent one – Productive4.0. Such projects, driven by large enterprises, are the "natural" environment to develop technology platforms and introduce new standards to the market. Being a costly and long-term process, it requires enormous operational capacity and huge expenditures. And that is something start-ups and scale-ups by definition do not have or cannot afford.

The prospects for SMEs are therefore clear: collaborative R&D constitutes an opportunity to learn about industry leaders' requirements, gain access to standards as they are developed, to secure a position at the forefront of technological advances as early adopters of the outcomes or as components suppliers.

A similar vision echoed one month later in the statement of Bert De Colvenaer, the Executive Director of ECSEL JU, who during ECSEL Symposium in Malta in June 2017 said: "Let SMEs know that we can provide access to a wider range of opportunities and end games than they could establish themselves." DIF 2017 itself was already an occasion for innovative SMEs to gain exposure to venture capitalists, CEOs and high-ranking representatives of leading European enterprises in the ECS domain. During the forum, in the fire of pitching and Q&A questions, eight "iconic" SMEs were selected, winning the recognition of the ECS sector leaders.

# STRATEGIC RESEARCH

That is how we get to the heart of the matter, to ambitions which reach beyond

the usually three-year collaborative projects. Even the most market-driven R&D activities do not deliver innovations *per se*, which require additional effort and expenditure on productisation, marketing and sales. In order to reach TRL9 and to streamline innovation deployment, SMEs and start-ups in particular require funding and support mechanisms beyond public R&D programmes, involving corporate technology accelerators, venture capital funds or even business angels' networks.

Such vision, aiming at SMEs collaborating with large enterprises, constitutes one of the topics of the Strategic Research Agenda, published in January 2018, in which the entire ECS community speaks with one voice on R&D priorities and the development strategy of the industry in Europe.

Firstly, ECS SRA bets on involvement from large enterprises and wants to enhance the complete innovation process in SMEs, starting from identifying the value proposal, through validation of the technology, and ending with the financial investment for scaling up. Lighthouse initiatives, or dedicated coordination and support actions, are considered as potentially suitable instruments to grow an ecosystem capable of delivering such end-to-end support.

Secondly, commercialisation of the project results by SMEs can be facilitated by ECS corporate venture capital funds. CVCs seem to be an obvious choice: they remain well-embedded in the value chain or application domains so that SMEs, participating in ECS ecosystem, fit their investment portfolio by default and are suitable candidates to play a role in respective value networks.

# H2020 HALFWAY POINT

The role of SMEs is well-understood. In June 2017 the interim evaluation of ECSEL JU was published, putting forward several recommendations. In particular, the increase of funding allocated to SMEs is expected in order to approach H2020 target of 20% of the budget granted to SMEs. Beyond that, both the dedicated SME-suited financing instruments as well as the mechanisms connecting them to large enterprises are envisaged.

On 11 April 2018 the ECSEL Governing Board, in response to the recommendations, adopted an action plan, which comprises an inquiry to identify SMEs requirements, measures to guarantee higher project participation ratio and assessment of dedicated actions targeting SMEs for future work plans. The plan is already underway. In March ECSEL, supported by AENEAS, ARTEMIS-IA, EPoSS and the European Commission, among others, launched a survey to identify needs and motivations of SMEs in the ECS Community.

# TOWARDS HORIZON EUROPE

In February this year, ARTEMIS-IA together with 24 associations representing key players on European R&D&I scene signed joint declaration regarding the 9<sup>th</sup> Framework Programme and its role in fulfilling the ambitions of EU Industrial Policy Strategy, especially in boosting the competitiveness of European industry. One of the focal points of the declaration is that in the FP9 to come, public-private partnerships, apart from leveraging private investment in R&D, should help "SMEs and Start-ups engage in EU and international supply chains".

This direction is plausible. The Multi-Annual Financial Framework 2021-2027, announced on 2 May, introduces €100 billion FP9 (Horizon Europe) and recognises the Joint Undertaking idea as a successful model for establishing research and innovation partnerships between public and private sector. One might expect that PPPs will continue on their path to empowering SMEs in translating their technological innovations into successful products and services.

*Mateusz Bonecki* is Director R&D at BetterSolutions SA and ARTEMIS-IA Steering Board Member. He participated in the ECSEL working group on strategy and impact to deliver the action plan responding to recommendations of the interim evaluation of the JU. On 16 May 2018, Dr. Ehler, MEP EPP Group hosted a working lunch at the European Parliament. MEP'ers attended to share views and find synergies between European Structural funds and H2020, followed by Horizon Europe after H2020.

Dr. Ehler opened the working lunch explaining that we face important financial gaps in R&I at national state level; this gap can be bridged by EU mission oriented programmes. The ECSEL JU is a clear example of mission oriented research. Furthermore, he stressed that SMEs are substantial drivers of innovation in the EU.

It is of utmost importance to use an easyto-understand language to let policymakers understand how crucial the ECS is and to explain how related industry has a positive impact on Europe. We need to translate the ambition of the sector to budget figures and visualise the needs clearly. The conversation with Member States needs to start now.

Mrs. SIOLI clearly stated that the ECSEL JU programme secures a significant leverage effect. Each euro invested by the EU mobilises 1 euro from national states, and 2 euros from industry. Full openness of the programme is a key element and the strategic role of ECS technologies, including the dialogue with other programmes and initiatives. ECSEL JU is a flexible programme able to incorporate new needs. One of these needs is Artificial Intelligence. Al is now a top priority at EU level.

The Interim evaluation of the ECSEL JU clearly states that the ECSEL JU is delivering. Jan van de Biesen, representing the Industry Associations continued that the High-Level Group on maximising the impact of EU

# WORKING LUNCH AT THE EUROPEAN PARLIAMENT

by IRIS HAMELINK



R&l programmes, chaired by Pascal Lamy, recommends to "better align EU and national R&l investments". "A simplified and flexible co-funding mechanism should be established to this end, with lead agencies specialising in their implementation. More synergies with financial instruments should be encouraged and there is a strong need for simplification: full uniformity of rules, no multiple reports on costs, multi-annual allocation of funds, etc.

The ECSEL JU was already conceived to be a mission oriented programme and the three Industry Associations are of the opinion that FP9, including ECSEL2, should continue to provide public funding to large firms, as these will play a pivotal role in creating and maintaining innovation ecosystems, publicprivate partnerships and global value chains, from which also many smaller firms will benefit. Jos Benschop, senior vice president for technology at ASML, continued on the added value of the ECSEL JU: providing not "simply" a financial support but facilitating the creation of an effective ecosystem in the ECS sector. In the past 34 years ASML has established strategic alliances with European supply chain and technology partners. More than 80% of €3.5 bn is spent with European suppliers – Carl Zeiss being the largest. Without the ECSEL JU support, the EUV machine would not be where it is today.

Sabine Herlitschka, chair of the ECSEL Governing Board, was the last speaker and stressed that there are only two companies making microchips in Europe: Infineon and ST. The EU cannot permit all the manufacturing capability going to Asia or the USA. We need to be aware of what is happening around us. ECS technologies are essential not only for the rest of the European economy but for their own technology autonomy and sovereignty. The gap in ECS investments between the EU and other geographical regions is huge. For example; the ECSEL budget is 5 billion while the budget on R&I in China is 150 billion.

"ECS are everywhere and will have a tremendous impact in the future GDP of the EU. It is crucial to pass on this message to policymakers. It is not another request for money, it is a matter of our future, and how we want to shape our future together."

"We are going to fight for your budget and to extend it." With these words Dr Ehler brought a positive conclusion to a successful meeting, one that had been not only about ECSEL but, above all, about taking the opportunities we have ahead of us.

# **CALENDAR**

# TECH SUMMIT

7 June 2018 | BRUSSELS

The Brussels Tech Summit returns on 7 June 2018. From origins as the Digital Festival, we are evolving to bring the very latest deep dive debates on cutting-edge, emerging tech to the heart of Europe.

# **SWARMS CONFERENCE**

11 June 2018 IRELAND

SWARMs Conference on Novel Solutions for Underwater Vehicles in Autonomous Sea Operations would like to receive submissions in the area of solutions for underwater vehicles in autonomous sea operations

# ECSEL SYMPOSIUM

19-20 June 2018 BRUSSELS

This ECSEL Symposium aims to provide a unique opportunity and space for the ECSEL funded projects to present their progress and results to date, to disseminate the scientific and technological achievements, and to show their contributions to the programme.

# EGVIA WORKSHOP

20 June 2018 BRUSSELS

The workshop will aim at discussing the challenges and potential solutions for a large scale uptake of electro-mobility in Europe, more specifically by focusing on the challenges of EVs integration into the grid in cities and peri-urban areas.

# ENABLE S3 EXHIBITION 04 July 2018 DUBLIN

At this public exhibition, the project partners will present the key projects results after 2 project years. Visitors will have the chance to learn more about the key activities, gain first hand insights into the prototypes from across six domains and meet the people driving this project.

# <u>AMAA 2018</u> 11-12 September 2018

BERLIN

22nd International Forum on Advanced Microsystems for Automotive Applications (AMAA 2018)

"Smart Systems for Clean, Safe and Shared Road Vehicles". Leading engineers and scholars from all around the world are cordially invited to participate in the dialogue addressing ongoing research and novel developments.

# <u>ECSA 2018</u> 24-28 September 2018 MADRID

The European Conference on Software Architecture (ECSA) is the premier European software architecture conference, providing researchers, practitioners and educators with a platform to present and discuss the most recent, innovative and significant findings and experiences in the field of software architecture research and practice.

# EARPA FORM FORUM 17 October 2018

BRUSSELS

The Future Of Road Mobility Forum is a conference organized by EARPA, the association of automotive R&D organisations. It will bring together researchers, professionals and practitioners from Industry and Government for a productive and rewarding exchange of insights, experiences, achievements and perspectives on current and future developments in the European road mobility and automotive arena.

> EFECS 2018 20-22 November 2018 LISBON

EFECS is the international forum with a focus on 'Our Digital Future' along the Electronic Components and Systems value chain in Europe. The organisers of this event, AENEAS, ARTEMIS-IA, EPOSS, ECSEL Joint Undertaking and the European Commission, and associate organiser EUREKA, joined forces to bring all stakeholders together on 20-22 November 2018.

> ICT 2018 4-6 December VIENNA

ICT 2018 will take place in Vienna on 4-6 December 2018. This research and innovation event will focus on the European Union's priorities in the digital transformation of society and industry. It will present an opportunity for the people involved in this transformation to share their experience and vision of Europe in the digital age.

# <u>EDITORIAL</u> INFORMATION

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

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## 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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