The ARTEMIS Magazine is published by ARTEMIS Industry Association and ARTEMIS Joint Undertaking. The magazine provides information on the developments within the ARTEMIS European Technology Platform and the ARTEMIS community.

ARTEMIS

December 2010 NO.8 ~ ARTEMIS Centres of Innovation Excellence

FOOD FOR INNOVATION

Is Heinrich Daembkes a guide to the ARTEMIS Centres of Innovation Excellence?

What has Pietro Perlo to say about Sustainable Mobility?

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FOREWORD

The annual Co-Summit, organised together with ITEA2 for the third time was again a success, with an impressive exhibition of 70 projects (45 from ITEA2 and 25 from ARTEMIS). We had very interesting keynote speeches in the plenary and parallel sessions. An intriguing keynote speech came from Pietro Perlo, who challenged the embedded community to come up with approaches that can help the energy situation because, in his view, the specific strength of Europe in sustainable mobility is system integration. He also has the floor in this magazine on page 14 and 15.

In September this year the report of the Evaluation Panel of the Interim Evaluation of the ARTEMIS and ENIAC Joint Technology Initiatives became available. This magazine notes the highlights of this report and the initial reaction of the Steering Board of ARTEMIS Industry Association to the European Commission by Klaus Grimm.

During the meeting of the Steering Board (25 October) this year, it was decided that ARTEMIS Industry Association would grant an ARTEMIS recognition label to Centres of Innovation Excellence that fulfill a set of requirements that are important for the embedded systems business. Heinrich Daembkes, the chair of the Working Group Innovation Excellence, reports on this initiative.

At the Co-summit event in Ghent eSONIA won the ARTEMIS exhibition award. Toni Sulameri provides an overview of the project here and Pertti Huuskonen tells us about the Cloud of Interusable Devices while Alun Foster presents an overview of multi-core technologies as discussed at the Co-summit.

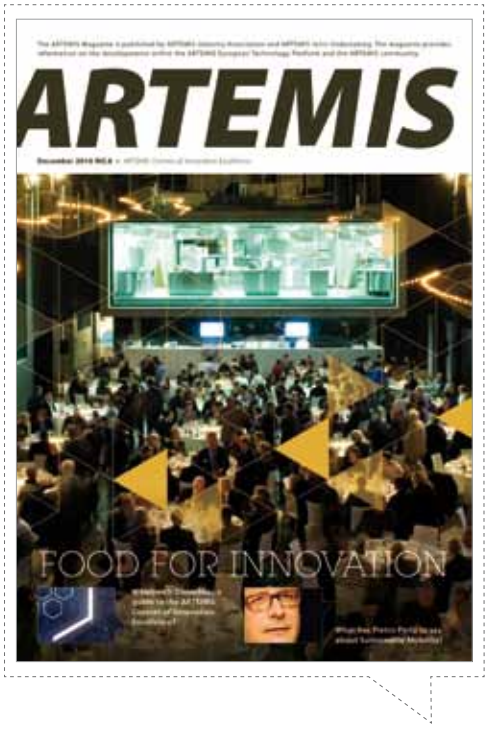
On 14 and 15 December the fourth ARTEMIS Brokerage Event will take place in Barcelona. ARTEMIS Magazine has asked three members of the ARTEMIS Industry Association to give their views and expectations of the Brokerage Event. Laila Gide gives us an update of the ProSE activities , recommendation and standardisation in embedded systems. Finally, Matthias Sturm, chairman of the 'embedded world' Exhibition & Conference Committee, explains why, in his view, ARTEMIS and 'embedded world' make a great match.

I hope you enjoy reading our ARTEMIS Magazine.

Jan Lohstroh

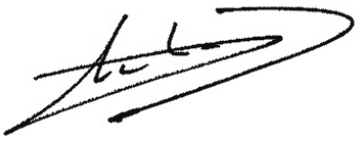
The ARTEMIS Joint Undertaking office exists to serve the ARTEMIS community of stakeholders, which means there will be constant communication between the Office and all the partners, including the Commission, the ARTEMIS Member States and ARTEMIS Industry Association.

FOREWORD



Welcome to the 8th ARTEMIS magazine, in which we'll be taking a look at some broader aspects of the ARTEMIS programme. The annual 'Co-Summit' in Ghent, organised together with ITEA2, showed once more the benefits of the 'collaboration effect': the results are very much more than the sum of the parts. Among the many interesting project displays and presentations, we learned of a strong and growing initiative that is driving this ARTEMIS ideal forward. By stimulating the growth of a community far larger than a single funded project could be, the European Electric Car initiative is deliberately optimising the use of the various funding instruments to form the components of a major innovation around sustainable mobility. The ARTEMIS project POLLUX is set up alongside existing or future projects in ENIAC, ITEA2, FP7 and National programmes, to provide the essential systems for energy efficiency and safety in a completely new generation of vehicles. This is a wonderful example of the spirit behind the ARTEMIS 'Centres of Innovation Excellence', which you can read more about in this magazine and, now that the ARTEMIS programme is truly up and running, about which we'll be hearing a lot more in the coming months and years. With projects from two calls up and running, and the 2010 call results known, the time is right to check our progress against the initial ambitions. In this edition we'll also take a look at the project portfolio as it is today and take a forwards glance at Call 2011, to see how it can help us to plot a straight course.

I hope you enjoy this edition of ARTEMIS Magazine!



Eric Schutz

FIRST INTERIM EVALUATION OF THE ARTEMIS AND ENIAC JOINT TECHNOLOGY INITIATIVES

By Klaus Grimm

Computing technology is facing many threats and challenges from fragmentation, globalisation and fierce competition. In recognition of the strategic importance of embedded computing systems the European Union launched the ARTEMIS Joint Technology Initiative (JTI) as a Joint Undertaking (JU), or public-private partnership, between:

- The European Commission
- 22 participating countries: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, the Netherlands, Norway, Portugal, Romania, Slovenia, Spain, Sweden, United Kingdom.
- ARTEMIS Industry Association (200+ members)

The first interim evaluation of the ARTEMIS and ENIAC JTI's (as stated in the Council Regulations establishing these JTI's) was carried out with the assistance of a panel of independent experts, chaired by Wulf H. Bernotat. The resulting report, which can be found on the ARTEMIS Joint Undertaking website, supports the tripartite model of the JTI's and makes a number of recommendations to all the parties involved. The momentum is set to continue beyond 2013.

In general, the evaluation panel found that the original reasons for establishing the ARTEMIS and ENIAC JTI's are still valid. Not only do they benefit Member States and Europe as a whole by enabling all parties to share costs and gain leverage on their own investments in strategic R&D, they also enable industrial companies in the participating countries to accelerate their innovation and become more productive, so enhancing their competitiveness in a fast moving, globally competitive market. A very positive stance, therefore.

GOOD PROGRESS BUT ROOM FOR IMPROVEMENT ~ The establishment of these industry-led tripartite (industry-national-EU) public-private partnerships is a major achievement and they validate the general concept of the JTI. The panel therefore recommends that research and technology in the fields of embedded computing systems and nano-electronics should continue to be coordinated on a European level. At the same time the panel sees room for improvement on various topics, including:

> Overall investments – these have not increased as much as expected
> The funding commitment by Member States – this is significantly below expectations
> The selection of projects – this gives insufficient consideration to the JTI's European strategic objectives
> Coordination with Eureka – this has not been achieved
> Realisation of aims - various features of the Council Regulation inhibit the realisation of certain aims such as the inability to support activities other than R&D (like enhancement of the innovation environment).

The panel recommends renewing the JTI's in these two sectors in their present tripartite form in 2013 but makes a range of recommendations to the European Commission, Member States and Industry Associations to enable the JTI's to overcome the difficulties experienced so far. Such recommendations include:

> Member States committing to funding on a multi-annual basis
> Coordinating the JTI programmes with Eureka, national programmes and the EC Framework Programme
> The Industry Association demonstrating its recommitment to a European strategic programme that is not a collection of opportunistic 'bottom up' projects
> The Industry Associations reviewing and refreshing their SRA's (Strategic Research Agendas)
> Enabling support of projects and other activities to enhance the innovation ecosystems in addition to R&D

ARTEMIS BEYOND 2013 ~ The report contains much detailed analysis and many detailed recommendations. The Commission is expected to send a communication to the Council and European Parliament at the end of this year presenting the results of the Interim Evaluation accompanied by the observations of the Commission. ARTEMIS Magazine March 2011 will zoom in on this.

Last September the Steering Board of ARTEMIS Industry Association sent a letter to the Commission in response to the findings and recommendations of the Evaluation Panel. A synopsis of this letter reads as follows: 'We, ARTEMIS Industry Association, are impressed by the work of the Evaluation Panel in gaining insight into the ARTEMIS Joint Undertaking and its partners. We are pleased with the top-level conclusion that the ARTEMIS initiative should be continued after 2013 on the basis of a new Council Regulation and that we should prepare for this follow-up phase. We are in general agreement with the conclusions and recommendations, although not in full. We will study all the recommendations for all parties in detail and decide how we can help the partners and ourselves to respond to and act on the recommendations pertaining to the ARTEMIS Industry Association.' ■

Dr Klaus Grimm is head of the Daimler Software Technology Laboratory in Germany. Next to this, he is President of the ARTEMIS Industry Association and, as such, he is the Chairman of the Governing Board of the ARTEMIS Joint Undertaking.
In an earlier interview (2008) he stated: "In ARTEMIS we have a common strategic research agenda, developed in both a top-down and a bottom-up approach, integrating all potential stakeholders in a combined effort. ARTEMIS is in an initial phase, where we are running through all the processes for the first time. This is a very interesting phase because it gives us the opportunity to discuss the processes and perhaps improve them."

Download:
www.artemis-ju.eu/attachments/162/JTI_Evaluation_Report_final.pdf
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CENTRES OF INNOVATION EXCELLENCE

This article presents a brief guide to Centres of Innovation Excellence by Heinrich Daembkes who states that 'Innovation and the creation of innovation ecosystems is at the heart of the ARTEMIS programme whose purpose is to create the context in which innovation can cross the bridge to market and to establish groups of people in the chain to facilitate this.'

CENTRES OF WHAT? ~ Centres of Innovation Excellence (CoIE) are groups of multi-country, multi-organisation, interconnected R&D actors and businesses able to achieve a significant advantage in innovation success in a specific market through efficient planning, acting and cooperation. CoIEs exist mainly to create new, self-sustaining businesses that, in turn, drive employment and social responsiveness, among other things. However, in order for CoIEs to be successful, they must comprise a range of actors in a suitable environment and nurture a culture of cooperation in which various forms of partnerships work across boundaries.

HOLISTIC APPROACH ~ ARTEMIS aims to establish a new, holistic approach to research, technology development, innovation and skill creation by means of innovation ecosystems, thereby benefiting from the advantages created both by cooperation and by market competition. This will both increase the efficiency of technological development and, at the same time, enhance the competitiveness of the market in the supply of embedded systems technologies. By establishing collaborative innovation ecosystems through stimulating the emergence of self-sustaining European groups of all the actors involved in embedded systems innovation, ARTEMIS wants to strengthen the European position in Embedded Intelligence and Systems and so achieve world-class leadership in this area.

ESTABLISHING ARTEMIS LABELLING CRITERIA FOR CoIES ~ A paper developed in great detail and through the course of very careful discussions, including some members of the Steering Board, was finally accepted and approved by the Steering Board of ARTEMIS Industry Association at its last meeting in Ghent at the end of October this year. The reference case for an ARTEMIS CoIE and, of course, the first official CoIE is EICOSE. Over the past year we have introduced several new groups and institutions to the concept of forming a new CoIE . Now we have a first set of relevant partners who are applying for the status of CoIE. However, awarding the label had, until now, not been possible. The recent official approval of the labelling criteria paves the way for this to be awarded. The first group concerned is called ProcessIT . It is working on the exploration and application of embedded systems in process control and process automation. It already covers nearly the entire value chain, exactly as contained in the ideal case scenario for CoIEs.

We are working on finalising the labelling process so that the label can be awarded, at the latest, during the next spring meeting of the Steering Board of ARTEMIS Industry Association. The next CoIE applicants are at a fairly advanced stage in their preparations. One is working on embedded systems in urban life (coordinated by Spanish members) and another on security aspects, prepared by a German Fraunhofer Institute. Another group driven by industrial partners is interested in medical applications, but we still need to clarify if and where the overlaps with existing initiatives lie, like ambient assisted living, which is pursuing a different model.

PUBLICITY ~ Publicity is an area that is in real need of improvement. The CoIE working group has held more than five face-to-face meetings and several teleconference meetings involving up to 25 people to work on the rules, the labelling criteria, the application process and benefits in becoming an by ARTEMIS Industry labelled CoIE. Following these meetings, we decided to establish a webpage inside the website of the Industry Association to explain and publicise the CoIEs, indicating the purpose and benefits of CoIEs as well as how to apply for a label, the criteria, etc. This CoIE webpage is intended to provide a continuously updated list of CoIEs, with the status of 'awarded' and 'under formation', with the respective content, the point of contact and mail address. Furthermore, some first reports on the CoIE working group and a report on the content of ProcessIT were published in the ARTEMIS magazines (2009).

ALL HANDS TO THE WHEEL ~ One important benefit for CoIEs is that they are given the right to provide input to new ARTEMIS work programmes and to subsequent SRAs. This move was very well appreciated by the candidate COIEs since this gives them a voice. Furthermore, we are starting a series of presentations to the relevant national institutions to make the ARTEMIS CoIEs known and to explain their role.

A first presentation of the CoIE concept to the German Minister for Research and Technology to generate awareness and get support was very well received and much welcomed. This initiative will receive a strong tail wind from the new Barroso initiative on EU Innovation Partnership. Therefore, it is certainly worth undertaking similar actions in other countries as well. However, such a roll-out does require the strong engagement of volunteers, so publicity for contributions and engagement needs to be boosted. All hands to the wheel will help us turn opinion and enhance our dynamics!

CRITERIA FOR THE 'ARTEMIS COIE' LABEL

PARTNERS ~ An ARTEMIS ecosystem must include partners active in the market. They could be institutions or initiatives based on a group of individuals or teams, or a local CoiE, working closely together, with proven highly recognised experience and capabilities in their domain. Partners may be both public and private bodies, large companies, SMEs, intermediaries and cover all levels in the supply chain, such as knowledge providers, generic technology providers, systems developers, systems integrators, service providers and product companies, and even end-users. Academic institutions at all levels as well as bridging institutions that help close gaps between actors and other public and private organisations (venture capital firms, shared resources, training companies) are also relevant partners. CoIEs will be subject to a re-assessment of the CoIE-ARTEMIS label by ARTEMIS Industry Association once every three years. If the CoIE fails to fulfil the criteria, the label could be withdrawn.

THREE IS A CROWD ~ The minimum number of partners to begin with must be three, with representation from at least two different countries. Although a higher number of partners is preferred, this is not mandatory for the start. The minimum number of participants from industry must be two. The application should provide info on where partners are positioned in the supply chain, which end-users are involved and the geographical scope of the CoIE. Membership of ARTEMIS Industry Association of one of the members of a candidate ARTEMIS CoIE is required at the time of application. As soon as the label is granted, at least 50% of the members of the CoIE have to become a member of ARTEMIS Industry Association within one year. If a candidate ARTEMIS CoIE is a cluster of associations, at least one member per association should be member at the time of application and at least 50% of all members of each association have to become members of ARTEMIS Industry Association within one year to benefit from the support of the Industry Association.

INNOVATION AND R&D ~ The actors in a CoIE will share common interests - potentially from key technology research through to a market – that provide a focus for both the participants and the outside world to recognise the ecosystem. It is important that a culture of openness, trust, fairness and willingness to cooperate must pervade and a base of world-class knowledge and experience is created. In such a stimulating environment interaction is facilitated and encouraged rather than inhibited, and situations arise in which solution ideas meet problem situations. The scope and desire is to support the development of academic excellence regarding both technology and

Heinrich Daembkes, VP Systems & SW Engineering at Cassidian Electronics, is chairman of the working group on Centres of Innovation Excellence (CoIEs) of the ARTEMIS Industry Association.
He studied electrical engineering at the Technical University in Aachen, Germany. After a short period as young design engineer at Telefunken Radio and TV Systems he took a position at Duisburg University, where he worked on GaAs based FETs and HEMTs. In 1983 he received his PhD degree on this topic (summa cum laude). Then he started a research career at AEG research centre in Ulm, Germany, working on InP HBT based optoelectronic receivers ICs, later on GaAs and SiGe based technologies and ICs.
Until 1996 he was VP for High Frequency Electronics at Daimler Research Center with responsibility for advanced high frequency semiconductor technologies (SiGe, GaAs, InP), optoelectronics, packaging, and mm-wave radars. Since 1995 in parallel he is professor at the university Ulm, Germany. In 1996 he became a co-founder and CEO of United Monolithic Semiconductors (UMS), a JV between Thales and EADS on GaAs based MMICs, which he turned into a successful commercial enterprise.

cooperation. The main R&D domain of the ecosystem should fit the ARTEMIS Strategic Research Agenda. Through relations with other networks and public authorities, this should provide enough mass to sustain the visibility and viability of this interaction, and to attract interest from and retain considerable impact on the market.

LABEL CERTIFICATION CRITERIA ~ A CoIE must have a mission document and some basic rules of interaction. A Chairperson or Speaker will be nominated to act as the point of contact for the CoIE to the outside world. The CoIE mission must then be translated into a plan of action that describes the main activities driving the innovation system forward: common meetings, workshops, pre-studies/pre-projects, R&D projects, different interest groups (technology, sector, etc), events involving representatives from all stakeholders (researchers, developers, producers, users, financers, marketing, etc). This plan of action must be updated at least once a year.

NETWORKING ~ A CoIE will build and maintain relationships with other networks (it has an inter-cluster cooperation strategy) and the public authorities, and contribute to enhance EU competitiveness. It will have to demonstrate its activities on a regular basis, for example, publishing an annual activity and progress report that describes, amongst other things, the progress made on ARTEMIS label criteria. The CoIE should also provide networking and matchmaking facilities to encourage frequent interaction and the initiation of cooperative R&D projects. The ARTEMIS CoIE should also be open to questions from the members of the ARTEMIS Industry Association on ways of working and best practices.

OPTIONAL EXTRAS ~ CoIEs might also contribute to ecological principles, recognising real concerns about safety, energy usage and sustainability as well as actively stimulate SME participation in the ARTEMIS innovation ecosystem(s), thereby enhancing their growth and success. CoIEs could also explore new business models for trading in the envisaged dynamic innovation environment, including the incorporation of open source concepts and encouraging the establishment of open European Tool Platforms that could evolve and interoperate with other tool solutions. They might also consider extending standardisation to related domains and recommending adaptations to European educational systems, assisting them to supply, sustainably, suitably skilled engineers and researchers. Finally, by encouraging the opening of supply chains, where beneficial, a more open innovation environment might be created through the ARTEMIS Innovation Ecosystems. Let's use this new tool and benefit from it! ■

More information:
www.artemisia-association.org/coielabel
Or contact: ad.ten.berg@artemis.eu

CO-SUMMIT 2010

Opening addresses and the co ingredient

'Join me and remove the walls between the programmes and let's make things better for Europe – for industry and society'. This was the call made by Eric Schutz, Executive Director of ARTEMIS, to his ITEA2 counterpart Rudolf Haggenmüller at the start of the two-day Co-summit in Ghent at the end of October. In their opening speeches to the Co-summit 2010 both Rudolf and Eric cited the growing relationship between the two programmes, with Eric calling for even more synergy between them to boost the electronics industry in Europe. The two men proudly presented their recent publications celebrating the progress that had been made in the past few years – '12 years of ITEA' and the 'ARTEMIS Book of Projects, volume one'.

With guest speaker Kari Tilli, Director of TEKES, unfortunately unable to attend, his colleague Matti Sihto stepped in at the last minute and addressed the audience on the Finnish perspective of the European Research Agenda and its commitment to technology and innovation. TEKES is not simply a funding agency but an agency for innovation, which comes to much more than the average €6 million commitment per ARTEMIS call. Matti Sihto also produced a book but apologised for having to hold on to it since he did not have any copies to go around but he would have plenty of copies for everyone at the next Co-summit in Helsinki in 2011. The 'joke' typified the opening speeches that addressed serious matters but in an approachable way and set the tone for the rest of the conference and project exhibition – everyone was very welcome and contributions valued.

COMMUNITY SESSION ~ The afternoon saw the ARTEMIS community session in which Eric Schutz outlined the technical highlights of the ARTEMIS programme and, by way of illustration, introduced three of the exhibition projects – INDEXYS, POLLUX and SOFIA – which were presented to the audience in more detail by their project leaders. These three projects were fairly representative of the spread of the ARTEMIS project range in terms of size, participation and purpose. Andreas Eckel kicked off the series of presentations with his outline of the INDEXYS project whose aim was to develop a cross-domain architecture to cut the substantial cost of developing the basic services and tools along with design and verification processes. Realistically, Andreas admitted, INDEXYS is not expected to instantly replace existing architectural solutions but its architectural service implementations will support a gradual shift towards greater reusability of services across different domains (particularly the automotive, aerospace and railway domains) by using existing solutions, thus






Written by Chris Horgan

reducing costs, and the experience the engineering community already has with such solutions.

POLLUX, a unique platform to develop a distributed real-time embedded systems platform for next generation electric vehicles (EVs), was introduced by Marco Ottella, would once again feature the next day in a keynote speech by Pietro Perlo, head of research at Fiat. Marco underlined the benefits of multidisciplinarity and clustering knowledge and innovation through vertical integration and horizontal cooperation between OEMs and suppliers. The spin-offs for society include primary energy saving, lower cost and, in view of the growing shortage of strategic raw materials (i.e. lightweight metals, copper, rare earths), more sustainable production.

Finally, the SOFIA project, presented by project member Tullio Salmon, makes 'information' in the physical world available for smart services in embedded and ubiquitous systems. Tullio explained how the SOFIA Open Innovation Platform (OIP) architecture and Application Development Kit (ADK) make it easy to develop devices and services that can interact across vendor and industry domain boundaries. The benefit of this is that it complements and enhances the inherent functionality and value of the stand-alone device, service or system, while letting the individual vendors and owners determine the degree of openness and sharing according to their business needs.

As the series of enthusiastically received and applauded project presentations came to an end, so the first day at the conference venue ended. Most left for a brief break before the conference dinner later on that evening while those members of the General Assembly of the ARTEMIS Industry Association, left to convene to discuss a number of key issues.

KEYNOTE SPEECHES ~ The second day of the Co-summit opened with a number of keynote speeches that variously considered topics such as 'open innovation', an often maligned buzzword according to Wim de Waelle of IBBT, who invited the collaborative research community to provide the tools and instruments that could help generate commercial success. He appealed for research to take the freedom to think 'outside the box' (another buzzword) in meeting the societal challenges. He also cited the need for Europe to develop 'more firepower' to be able to compete with the United States, where start-ups enjoyed five to six times more cumulative funding.

The second speaker, Markus Vehlow of Pricewaterhouse Coopers, provided a perspective of cloud computing – ICT as a commodity, like electricity. While he admitted that while some may have their heads in the cloud, there were certainly silver linings to cloud power as he saw it. With the promise of affordability, availability, flexibility, scalability and (inter) connectability, cloud computing is moving in the right direction although there are still a number of significant hurdles to be taken.

> "join me and remove the walls between the programmes "

In a quite different look at the world of information science and communication, Professor Pierre Musso posed the question of whether there was a surplus of innovation whereby function and fiction were held in a kind of field of tension, something he referred to as the technology paradox. This certainly prompted food for thought and set the minds in the auditorium thinking.

Finally, Pietro Perlo of Fiat CRF began by apologising for his 'spaghetti English' and proceeded to lay some of the ghosts about the evil of the internal combustion engine and electrical power, revealing that 'conventional' power had now become extremely clean. He underlined the importance of embedded systems solutions to the future of the automotive industry and its wider impact on society, energy and mobility. The spaghetti tasted good in any case (a detailed account of this keynote speech is contained elsewhere in this magazine).

THE RIGHT INGREDIENTS FOR A GOOD MEAL ~ The cordiality that was evident at the conference from the very beginning between the joint chairmen of the summit was evident not only in the extent to which both shared a common purpose: that embedded systems should respond to the grand challenges and make a real difference to our lives, in terms of safety, health, mobility and general well-being. As the general tenor among all the ARTEMIS colleagues throughout the exhibition centre – at the stands, in the corridors, during lunch –bore witness, the cordiality spread and permeated to real social contact. The special dinner arranged for the Tuesday evening was an occasion for many participants to mix socially and continue their collegial conversations against a background of sumptuous food and fascinating company.

EXHIBITION ~ The project stands that adorned the ground (ITEA2) and first (ARTEMIS) floor were clear statements of intent. The atmosphere of collegiality among the various stands reflected the sense of togetherness and commitment to a common purpose shared by project partners. Professional interest was complemented by the chance to get up close and personal. The co-summit certainly afforded the opportunity for participants to gain a sense of the greater whole, to 'think big' when addressing societal issues.

The stands were simple, functional spaces but they hosted an impressive range of breakthrough and diversity, from consumer empowerment of the media landscape to sensor monitoring for agricultural optimisation. This was, of course, mouth-watering fare for the groups that were taken on personal tours by ARTEMIS staff along the project stands. Like SCALOPES and Dennis Alders who impressed with his very concise and clear outline of a project involving 36 partners from 11 countries and aimed at enabling an industrially sustainable path for the evolution of low-power, multi-core computing platforms. In other words, boosting the power-performance ratio. Interaction developed from the opportunity taken by the tour groups to throw a few questions the way of the presenters. However, it was not only the touring parties and other visitors that displayed a curiosity about the projects as stand-holders visited stand-holders, keen to find out more about the content and approaches of their ARTEMIS colleagues.

PARALLEL SESSIONS ~ During the afternoon a series of four parallel sessions was held. The topics were Cloud Computing, Multi-core Systems, Innovation Processes and a Student Master Class. Each session was very well attended and in the somewhat more intimate atmosphere there was much more of an interactive mood as audience questions were well fielded by the presenters. An interesting addition to this Co-summit was the Student Master Class session where PhD and Master students of Belgian universities were invited to attend the regular programme of events along with a special Master Class to illustrate the possibilities and attractiveness of taking up a career in international, collaborative, innovative research. The specific focus of this Master Class lay in three areas: the IMEC view of collaborative research, innovation from research through development to market leadership, and the involvement of research-intensive SMEs in European R&D projects.

However, in the end, time proved the enemy for these sessions, and while there was a sense that this dynamic interplay could have gone on for a while longer, nobody wanted to miss the closing session and award ceremony.

CO-SUMMIT 2010

FRIENDS AND WINNERS ~ The auditorium quickly filled up as the conference closed with Eric and Rudolf finishing as they had started, by reaffirming their commitment to working together and to building on the achievements to date to create a better future, for the industry in Europe and for society in general. Of course, there were several awards that had to be presented, and curiosity was high about the winners. The ARTEMIS project that came away with the co-summit project award was SOFIA, a project that makes information in the physical world available for smart services in embedded and ubiquitous systems. The award was gladly accepted by the SOFIA team.

ORGANISATION AND EVALUATION ~ Of course, the fact that everything ran smoothly, despite the occasional last-minute speaker substitutions and flight delays, owes much to the summit's organisation team and the accessibility afforded by the layout of the project stands, which invited contact, and the scheduling, which also provided enough time for more informal contacts as during the lunch breaks that saw sandwiches and salutations in equal amounts.

As the sense of a friendship grew tangibly closer and closer and a belief in making a real impact extended around the auditorium and through the conference centre, the community had reconvened, reconnected and left stronger than before. With the prospect of meeting old friends again and making new ones in Helsinki in a year's time, thoughts were already turning north to talk of Finnish hospitality. Something not to be missed in 2011!

A month after the conference ended, the evaluation questionnaires came back. They revealed the appreciation of the quality of the stands and pitches as well as enthusiasm to learn from each other and lay cross-domain links. The fact that the ARTEMIS exhibition was almost as highly regarded as the ITEA expo – with its much more product-geared focus, longer track record and presence of demonstrators – owed a lot to the clarity and content of the ARTEMIS project presentations.
More and more, it is becoming evident that ARTEMIS is not just another funding programme and that the efforts to break through the fragmentation that has beset the embedded systems and electronics industry for so long are starting to pay dividends. The end of the conference was clearly just the beginning …

SYSTEM INTEGRATION: THE EUROPEAN STRENGTH IN SUSTAINABLE MOBILITY

UNRAVELLING THE SPAGHETTI ~ Pietro Perlo began his presentation with an apology – his 'spaghetti English'. He did himself a disservice since the clarity of his content and the panache with which he presented it had the audience licking its lips to the dish he served up. The Senior Director of the Fiat Research Centre's laid a few ghosts, gave a fascinating insight into the facts and figures regarding conventional combustion-engine and electrical drive, and underlined the vital role that ICT and system integration would play in the development of sustainable transport.

NATURE OF HUMAN BEINGS ~ 'Humans are social animals – egoistic social animals,' Pietro began. The more we communicate the more we use and need mobility.' A vicious cycle? Well, if you consider the number of fatalities caused, yes. A surprising fact, however, was not the 1.5 million deaths annually due to traffic accidents – a stunning statistic in itself – but the many more people that die as a result of the pollution caused by traffic, not only in emerging countries but in Europe, too. So, safety is a particular concern shared by society in general and the automotive world in particular. The second key aspect is that of energy, which is 'becoming more and more of a social, political and economic aspect.' Given the finite nature of oil, it is vital for the automotive industry to reduce reliance on and consumption of this precious commodity. So, what has the automotive world actually been doing to deal with these issues?

'In terms of the internal combustion engine, three decades ago we were speaking of emissions in terms of grams while today it is milligrams, so that's three orders of magnitude. This is down to the computational power and intelligence that has been introduced into vehicles, and this will only continue to improve.' He referred to the considerable share of research investment being made throughout Europe to optimise efficiency and get emission levels down to zero, a trend that would continue for another two decades at least. But that still does not change the problem – liquid fuel, or oil, demand for which would increase by 1.5% per year up until 2035. Pietro came back to the nature of human beings as 'egoists from the sperm to the grave' lying at the heart of the problem. And the 'greed' that has meant a diminishing rate of return on oil exploration. A few decades ago you could get a hundred barrels of oil from crude but nowadays the return is down to just three as oil has become increasingly expensive to produce, often in

"concentrate on ICT content and, specifically, system integration"

Written by Chris Horgan

"We have to take action and collaborate at a European level"

very remote, inaccessible places. The same goes for natural gas. There is a real need to find sustainable alternatives – even biofuels are not sustainable. 'To produce a litre of bioethanol, you need almost one litre of oil. And those who claim that this produces less CO2 conveniently forget about the litre of oil! And algae? That needs three litres of oil to be produced!' The cost factor and the return on energy to produce energy are vital factors that must be considered. What Pietro suggests is a kind of combi-fuels approach in which it is not one fuel in competition with another but the combination of finite fuels and renewable energy. He came up with an interesting fact that this year was the first year that energy produced from new renewable energy installations in Europe outpaced that of non-renewable energy installations.

EFFICIENCY OF MOBILITY ~ Turning to electrical energy, another fascinating fact emerged. In 2000 there were 100,000 electrically powered vehicles globally; this year the figure was likely to be 70 million. And in Europe alone there were around 1.5 million electrically powered (motor) cycles, and growing. Figures for combustion engine equivalents had already peaked and were staring to decline. So, electrical mobility is growing exponentially. And one of the reasons for this is down to spectacular advances in technology over the past decade that have enabled electrical energy to be produced more efficiently. Pietro is convinced that by the end of the coming decade, by 2020, batteries will be at least two times the energy density than they are today, and so give another boost to electrical mobility. And efficiency of mobility is what will count in the future. In Europe today we move around very inefficiently in cars frequently containing one occupant powered by more cc than is actually required.

SPEED UP! ~ 'How can we speed up this process of electrification?,' Pietro asked. 'If we understand what part of the market cannot be covered by the internal combustion engine, then we can focus on what is important. But we also need to realise that the automotive industry is not alone. We have to take action and collaborate at a European level. The role of the battery is crucial. But it is not the electrochemistry in the battery that is the most important feature but the ICT. And 93% of the ICT contained in the solar (photovoltaic) cell or battery cell technology is European. This is a real European strength and essential to the system integration that is needed for efficient electrical mobility.'

SYSTEM INTEGRATION ~ An ICT controller distributes intelligence locally, which results in much higher efficiency, a much lower failure rate and a substantially reduced system cost. Pietro suggests that 'we should concentrate at European level on ICT content and, specifically, system integration because this is where Europe will be competitive. It is not simply the application of intelligence that makes Europe strong but the system integration of that intelligence. And it is important that we continue to collaborate and that programmes like ENIAC and ARTEMIS keep a fixed direction in the coming decade, not constantly reinvent the wheel. The potential of electrical mobility is enormous and we need strong people in the JTIs and the EU.

The world is changing. 'The rest of the world is acting very fast in the field of renewable fuels and electrical mobility. We should focus on critical ICT technologies.' ■

NEWCOMER eSONIA

During the Co-summit 2010, ARTEMIS Magazine spotted eSONIA, an ARTEMIS 2009 project. This project came close to winning the exhibition award for the team that communicates the project goals and achievements most clearly and vividly. While the audience chose the SOFIA project, a call 2008 project, as the winner, there was something special about the promising newcomer eSONIA, coordinated by Toni Sulameri of Hermia Ltd., Finland. A project worthy of highlighting.

The asset-aware, self-recovery plant
In Europe, the fact of the matter is that different parts of today's factories are isolated. They cannot be fully understood since there is no infrastructure for the relevant information to be measured and visualised in both a holistic and continuous way. It is this lack of insight that prevents efficient decision taking in real-time i.e. recovery from undesired situations. The ARTEMIS eSONIA project aims to, quite literally, remedy this situation.

The eSONIA consortium comprises fifteen partners from four different countries (Finland, Czech Republic, Italy and Spain). Having been built on the basis of previous contacts and successful collaborative efforts among certain partners, the consortium also involves new specifically targeted partners where appropriate in order to compliment and complete the foundation of expertise in the project. The project partners have close contacts with research in Japan, Korea, China and the United States.

VISUALISATION TOOLS ~ eSONIA aims to develop tools for the 3D visualisation of operations on the factory floor with an In-plant (indoor and outdoor) geo-location system for real-time asset management and a service management system for enhanced manufacturing control along with reference models and tools to implement a services-oriented architecture in a factory environment. These will be complemented by a set of processes running on embedded devices and offered to the outside world as Web Services to support (asset) health assessment, prognostics, maintenance scheduling (i.e. the best mix of cyclic, condition-based and predictive maintenance). All of this will give industry support for the continuous monitoring, diagnostics, prognostics and control of assets, regardless of their physical location. The data gathered allow efficient automatic maintenance schedules and improved operator dispatch and repair performance.

REAL-TIME MONITORING AND CONTROL ~ By realising the asset-aware and self-recovery plant through pervasive heterogeneous IPv6-based embedded devices and on-board specialised services glued through a middleware, eSONIA capitalises on the service oriented approach and so for the first time in industry support the continuous monitoring/diagnostics/prognostics/control of assets, regardless of their physical location. Plant information will be monitored in real time, elaborated and visualised in 3D-geolocation mode to enable continuous tracking of material flow from raw material to end products, make the runtime planning of product/supplies routes for continuous track & trace systems more efficient, improve the efficiency of automatic maintenance schedules and boost operator dispatch and repair performance as well as enable automatic triggering of re-sequencing and line-balancing processes in response to unscheduled maintenance actions or equipment failure.

THE ADDED VALUE ~ The novelty of eSONIA relates to system design and lies in the realisation of efficient manufacturing systems. The added value lies, then, not in creating new scientific artefacts but in the novel integration of emerging technologies such as semantic web services at device level, IPv6-based communication networks in large, distributed and heterogeneous applications or Web Services in wireless sensor nodes.

Manufacturing in Europe represents approximately 22% of GDP. It is estimated that

co written by Corina Popescu of TUT and Karen Thorburn of Hermia Ltd.

TONI SULAMERI
Coordinator eSonia project
Hermia Ltd.,Tampere, Finland
www.hermia.fi

With over 20 years of professional experience in the fields of mechatronics and ICT, Toni is currently in charge of business in the fields of mechanical engineering, automation and energy at Hermia Ltd. He is also Director of the Intelligent Machine Cluster programme in Finland, the goal of which is to accelerate new worldwide competitive business in the intelligent machine industry. He is also the coordinator of the eSonia ARTEMIS project.

Before joining Hermia Ltd, Toni worked for 12 years at Mevire Ltd as managing director (entrepreneur). Mevire Ltd developed control and automation products for mobile working machines (for example forest harvesters) and cars. Mevire Ltds products included truck TRIP computers, vehicle PC, crane control, diesel control, cabin control, forest harvester head control and measuring computers for forest harvesters. Before this he worked as a researcher in distributed control project for Tampere University of Technology/IHA.

75% of GDP and 70% of employment is related to manufacturing. While actual manufacturing is moving towards China and India, it is vital to keep manufacturing research in Europe since Europe leads in the production of value added products. The goal is to maintain that competitive advantage and eSONIA wants to support this goal by providing a platform designed to speed up the task of developing and deploying new platforms. The project will result in a ready-to-use starting point that frees development from the need to deal with low-level technical issues in each new development, and allows the focus to target innovation and the provision of value-adding functions.

IMPACT ON SOCIETY ~ eSONIA will generate new solutions in processing, aggregation and composition of data, which will help bring about a boost to work time efficiency and personnel motivation in the manufacturing sector. The asset awareness and visualisation techniques that are developed may also be applicable to other domains such as supply chain management and the logistics of crowded places. Today's growing waste reduction needs are indirectly addressed in eSONIA via use cases that target predictive maintenance in the process industry. Last but not least, safety aspects are of great concern: for instance, in Spain, 5% of all industrial fatalities occur during maintenance-related work and 70% of industrial accidents are caused by human error due to complex operations. Our hope is that eSONIA solutions will make a significant contribution to driving those percentages down.

More information: www.esonia.eu
Or contact: karen.thorburn @hermia.fi

THE CLOUD OF INTERUSABLE DEVICES

written by Perrti Huuskonen

Consumer products are reaching out to the internet. Every day we see new devices go online: watches displaying soccer statistics or stock ticks, fridges featuring weather reports, TV sets downloading the latest episodes of Desperate Housewives. Your music players and e-book readers receive their content from on-line sources, while your digital picture frames rotate fine images from your on-line albums. In research labs, more whimsical trials abound: plants tweet people to water them or coffee makers e-mail 'Coffee is ready' to anxious office workers.

CLOUD…? WHAT CLOUD…! ~ All kinds of devices, large and small, are being internet-enabled. This means that they can become members of a digital cloud ecosystem. The term 'cloud' today commonly refers to computational infrastructure for internet services and corporate data warehousing, for instance. In our view, consumer products (and later professional devices) will become important members of 'the cloud'. Some of them already have. Just consider the cloud terminal in your pocket, also known as a mobile phone.

Meanwhile, closer at hand, short-range connections are commonplace. No laptop today comes without a WLAN link, and most feature Bluetooth transceivers to connect with mice, phones, GPS devices and many other products. School kids' favourite pastime today involves beaming MP3s between their phones. As networking components continue to decrease in price and increase in their flexibility, the number of connected devices, both at short range and over longer distances, will continue to soar.

BEAM ME UP ~ The 'cloud of devices' future appears inevitable in consumer products, thanks to a number of commercial and technical factors. First, it is tempting to device makers to allow updates remotely, which can relax quality requirements in production. Cloud computing also allows manufacturers to receive usage information from their customers, which has many benefits for product development, marketing and customer retention. The consumers may be interested in hooking up via the cloud to other consumers who share the same devices, and thus same usage interests, product or service recommendations, and peer support in the event of problems. Socially enabled gadgets may be the norm soon.

However, the average consumer gadget today is still isolated. It has very little knowledge of the other devices near it, and almost no awareness at all of its user's situation. This is about to change. As products get linked via local and remote clouds, they can exchange information about their states, capabilities and service needs. They can offload their more demanding computational tasks to the cloud, receive software updates automatically or get serviced remotely. They can connect with other devices to coordinate their actions for rich automated smart homes.

NEW BUSINESS MODELS ~ The cloud offers interesting new business models, such as advertising in embedded systems. Like TV, radio and magazines, networked gadgets can also be viable platforms for advertisements. Any device with a display can attract eyeballs. In some scenarios, products could become virtually free for those consumers who are willing to receive custom advertising as part of the daily use of their cloud gadgets. Taken to an extreme, this trend could lead to a situation where only the affluent can afford to lead a quiet, advert-free life.

PROFESSIONAL USE? ~ Could the embedded cloud computing trend also happen in the professional systems sector? Yes, and it is already taking place. Remote maintenance of large machines (such as ship engines and elevators) is today's routine. The last time you serviced your car, the service manual probably was downloaded from the manufacturer's servers. From here, it is a small step to enable professional devices to actively connect to the cloud. Unfortunately, many security issues immediately surface. It would be very tempting to terrorists, for instance, to reconfigure a nuclear plant's controls for some nasty accidents. Similar hacks are already happening. For instance, the recent Stuxnet virus was reportedly engineered to sabotage uranium refineries.

USABILITY PROBLEMS ~ Besides security issues, various kinds of usability problems are bound to plague internet-enabled devices. The development of embedded systems is demanding, and doubly so for embedded networked devices. Many small engineering houses and departments lack the necessary variety of skills to simultaneously cater for critical real-time systems and web services that are appealing for humans. In general, R&D departments lack knowledge of Human-Computer Interfacing (HCI) issues. The resulting usability problems will plague millions of users of internet-enabled products in the near future.

DR. PERTTI HUUSKONEN

As Principal Researcher with Nokia (Tampere, Finland), Dr. Pertti Huuskonen focuses on context awareness, ubiquitous computing and mobile interaction. His previous work covered al for industrial control and particle accelerators. He holds a doctorate from University of Oulu, Finland, and is the coordinator for the ARTEMIS project SMARCOS.

Consumer and industrial point of view

Our SMARCOS project started in 2010 under the ARTEMIS framework, and was designed to find solutions to usability problems. SMARCOS studies cloud computing from both, consumer and industrial points of view. We seek to advance 'inter usability', i.e. human-computer interfacing techniques for interconnected devices. We develop methods that enable embedded computers be better aware of their users and the other devices near them. Such devices may be linked locally, via short-range networks, and remotely, through the cloud. SMARCOS research topics include collaborative context awareness and user modelling. ■

Go for more information to the SMARCOS website: www.smarcos-project.eu

MULTI-CORE TECHNOLOGIES – THE SEARCH FOR THE GRAIL

written by Alun Foster

The ARTEMIS Co-Summit 2010 parallel session on multi-core systems did not necessarily provide all the answers to the quest for the multi-core ideal but it certainly provided evidence that the journey is making significant progress. As Alun Foster, chair of the session, outlined in his introduction, the multi-core is no newcomer but the question persists: how do we exploit its full potential? We know what we want –one size that fits all solutions – but is this an ideal too far given the great diversity of applications and domains? This parallel session aimed to look at the options and provide insight into the actual progress that was being made, as represented in three projects, ParMA (ITEA2), ACROSS and SMECY (ARTEMIS).

EXPLOITING THE POTENTIAL OF PARALLELISM ~ David Castells-Rufas of the Universitat Autònoma de Barcelona and one of the partners in the award-winning ITEA 2 ParMA project kicked off the series of three presentations with a look at the powerful, innovative and comprehensive set of parallel programming methods and tools being developed to enable high-performance computing applications as well as embedded compute-intensive applications that run on MPSoC (Multi-Processor System-on-Chip).

As David suggested, while multi-processors may be commonplace, the potential of parallelisation cannot be easily exploited, so the only way to exploit this potential is to revamp parallel programming, especially in terms of innovative design. By extrapolating some of the lessons learned from current multi-cores, David and his team have set out to influence future architectures and programming methods. The Software Defined Radio (SDR) parallelism framework he introduced here comprises a hardware platform and a set of libraries and runtime software that aim to enhance communication time performance to approach real-time transmission, alleviate conventional SDR-processor overload and enable new SDR services through multiprocessing capabilities.

While a number of hardware issues still needed to be overcome, such as physical connections and consequent retardation caused by the communication time, the innovative designs are paving the way for parallelism to become an enabler to maximise SDR capabilities and performance

ACROSS-THE-BOARD SOLUTIONS ~ Christian El Salloum of the Vienna University of Technology took over the baton with ACROSS, an ARTEMIS project that got off the ground in March this year and 'intends to bring order to chaos and unify diversity' by building on the FP7 project GENESYS. The aim is to derive a common architecture through convergence by defining a virtual platform that can be applied over a wide range of applications, scaled to the requirements of a given implementation and facilitating the re-use of design solutions from different fields. Christian outlined the benefit of the approach taken in the ACROSS project that would prevent the needless and repetitive 're-invention of the wheel' in these different domains and offer industrial domain designers a common, cross-domain architectural solution for embedded systems. 'Composability is key – it is not just the what that counts but the when.' ACROSS intends to produce a 'network on a chip' design in which a number of sub-systems are contained within a single chip. In other words, a chip for all seasons that will allow flexible connection to various systems and for different applications. Furthermore, the middleware components to be developed will contain the selected optional services defined in the GENESYS architectural approach. Designers in the various industrial domains can add domain specific services to tailor the approach according to their specific requirements, something Christian refers to as 'waistline architecture' in which applications are fed through the 'waist' of core services into implementation.

HOLISTIC APPROACH ~ Compared with the domain-specific approaches currently used, this cross-domain, holistic approach is expected to save development time and cost and boost reliability at architecture level. The design of a generic MPSoC will provide a stable set of core services for the component-based development of embedded systems with short-time-to-market, low cost and high dependability as well as offer a universal platform for automotive, aerospace and industrial control systems to benefit from the economies of scale of semiconductor technology. Additionally, the ACROSS-MPSoC platform provides significant potential for adaptation by other industries with safety-critical data communication requirements such the medical, power generation and space domains. All in all, an ACROSS-the-board solution.

THE QUEST FOR THE GRAIL ~ Francois Pacull of CEA rounded off the multi-core session with the SMECY project (ARTEMIS) that is investigating multi-core tools for embedded systems. SMECY is an ambitious initiative designed to keep Europe at the forefront of the quest for the grail: to develop embedded multi-core technology for resource-constrained and real-time applications (consumer, wireless, transportation, etc).

'Wouldn't it be great if we had one cup for all?' One fits all (single universal compilation chain) for all applications, all programming paradigms and all target platforms (multi-cores in this case)? While this is actually quite unrealistic, of course, the possibility to have something efficient does, nevertheless, exist. And this is what SMECY is geared to: the grand challenge of efficient programming of multi-cores for various resource-constrained embedded system applications.

So, what do we have to do in our quest? We need, Francois suggested, to exploit very efficient, innovative multi-core platforms and targeted applications that need to use the power of these platforms. SMECY aims to develop new programming technologies enabling the exploitation of many (hundreds of) core architectures and so match those initiatives in Asia and the USA. The impact this will have is the rapid development to massively parallel computing environments whose improved performance, energy and cost characteristics will extensively penetrate the embedded system industry within a few years. It will shape the whole business landscape in which semiconductor vendors, for instance, will need to be capable of offering advanced multi-core platforms to diverse application sectors.

EUROPE TO CATCH UP ~ The strategic value of multi-core technologies in winning market share in all areas of embedded systems is indisputable. By laying its focus on targeting programming multi-core architecture for consumer electronics with efficient management of resources, SMECY aims to enable Europe to catch up with, and even overtake, Asia and the USA in this field. With time running out, Alun Foster thanked the presenters for their insight and the clarity of their pitches, echoing the interest and fascination that was apparent from an audience reluctant to leave the discussion but needing to hurry off to the closing session and the awards ceremony. ■

think BIG

Written by Alun Foster,
Programme Manager ARTEMIS Joint Undertaking

ARTEMIS BOOK OF PROJECTS VOLUMEONE

The ARTEMIS Joint Undertaking was set up to manage a new financing scheme for R&D, integrating contributions from the European Commission and from participating Member States – something unique that was never achieved before. But ARTEMIS is more than another R&D funding instrument.

THINK BIG ~ In order for the results of this R&D work to genuinely make a difference in our lives, the outcome of the programme must have impact. This impact can be achieved by creating an environment where the individual know-how of specific players can be brought together for the mutual benefit of all participants – and therefore of our society at large. One of the main goals of ARTEMIS is to put all these 'complementary assets' together in a structured way to form 'Innovation Ecosystems'. Now that the funding part has been set up and the results are starting to appear, we will see a lot more activity around these eco-systems in the near future. But let us go back to the 25 ARTEMIS projects that have been realized since the first call in 2008.

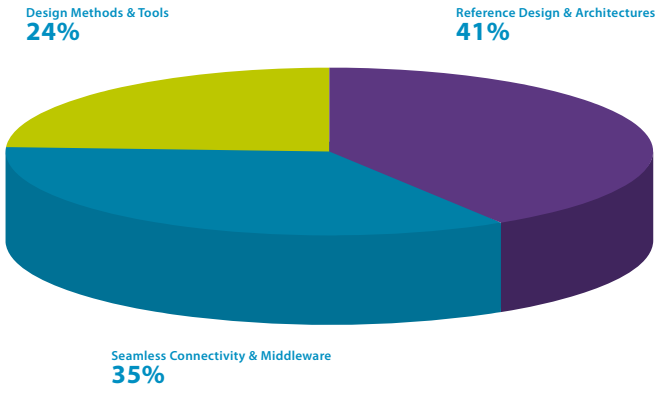
It is interesting to take a 'helicopter view' of what these projects are contributing to the ARTEMIS programme as a whole. The following charts give a snapshot view of the total ARTEMIS programme, after its first two Calls.

ASP COVERAGE

Using the 'Eligible Cost' of each project is a good item to use as a measure – it represents the investment that the ARTEMIS community is putting into the programme

That the ARTEMIS community is investing heavily in the safety critical aspects of embedded systems (ASP1) is natural. After all, they are increasingly used in areas that can directly impact the safety of the users (all of us). Also, the investment in the underlying architectures and the development tools needed to use them (ASP5) is a natural consequence. The remaining ASPs have a stronger application focus, and it is the goal of the ARTEMIS programme management group to encourage a higher participation in these areas in the future, to bring more balance to the programme.

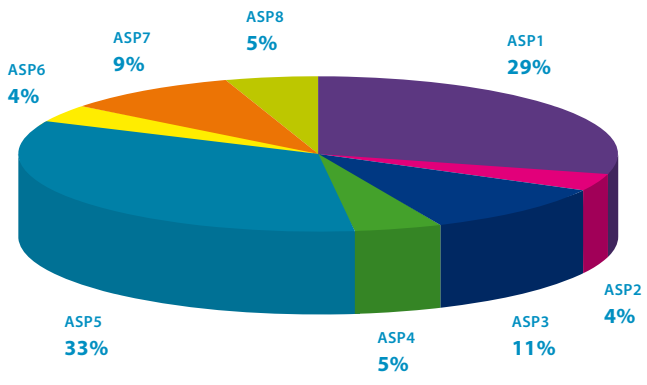
Coverage of transversal Research Domains
(representing industrial priorities)



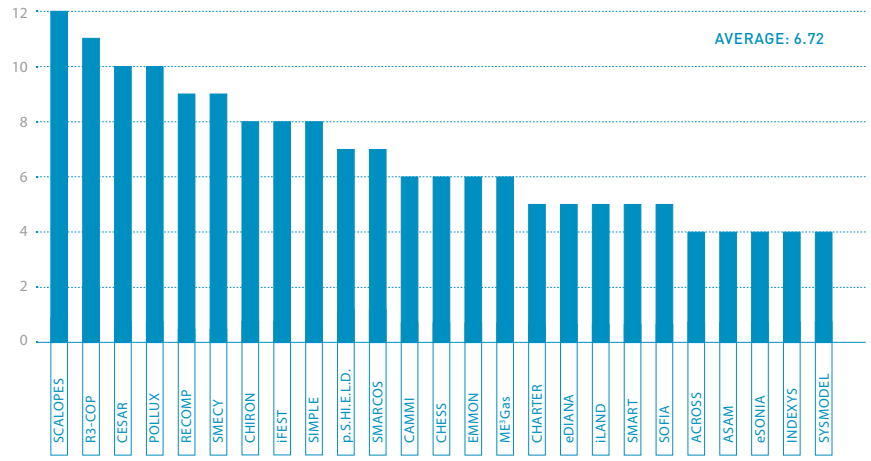
TRANSVERSAL RESEARCH DOMAINS

Another of the goals of ARTEMIS is to stimulate innovation by enabling the re-use of technological ideas and solutions across different application domains – the so-called transversal themes that the ARTEMIS-SRA documents as Industrial Research Priorities. This chart shows the distribution of effort (measured as Eligible Costs in the running projects) over the three priorities. From this perspective, the balance of the programme is more even. This is of course a relative picture – it compares progress in each priority relative to the others. With a more significant data-base of projects available, not that the Call 2010 projects are becoming more clearly defined, the aboslute progress along these important axes can be measured. A first step was made in this direction, at a special workshop held in the margins of the 2010 Co-summit event, in Ghent, the results of which will become available in the near future.

Coverage of Industrial Research Priorities, by Eligible Costs



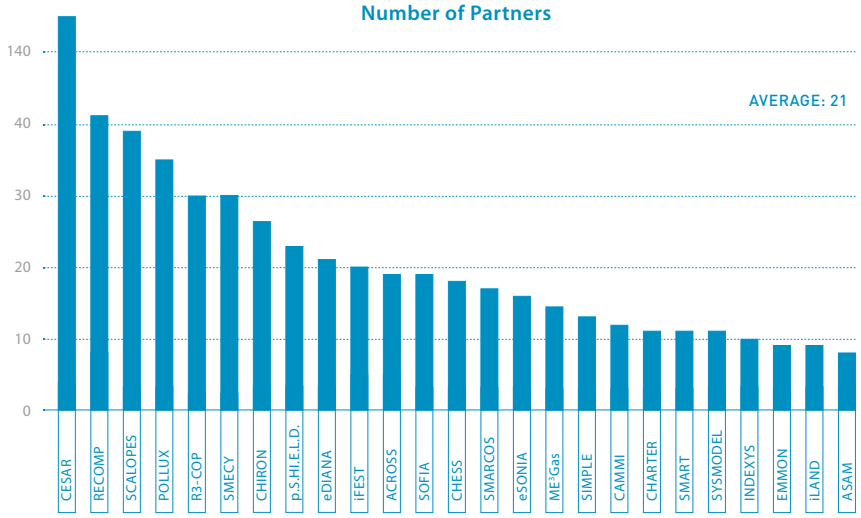
Number of Countries per project



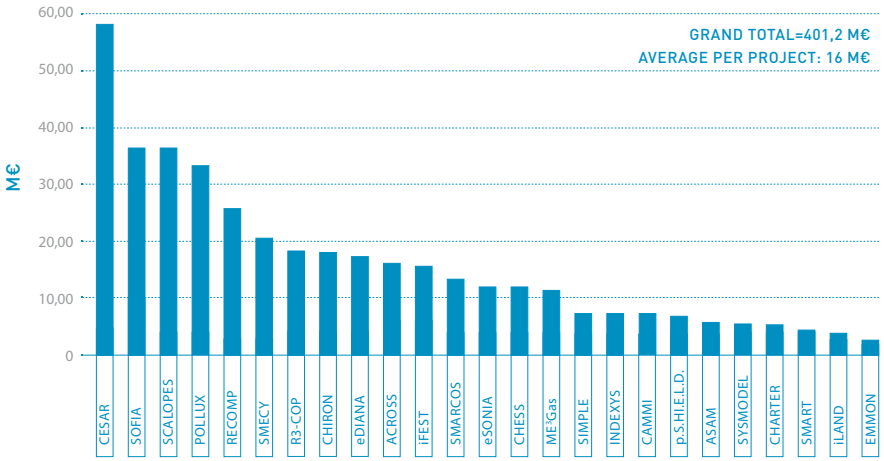
COUNTRIES PER PROJECT

With an average of close to 7 countries involved in each ARTEMIS project, the programme is successfully broadening the European perspective of embedded systems research (this average is typically lower in other funding instruments). The minimum for an ARTEMIS project has not yet been used – the smallest coverage is 4 countries.

Number of Partners



Total Eligible Cost

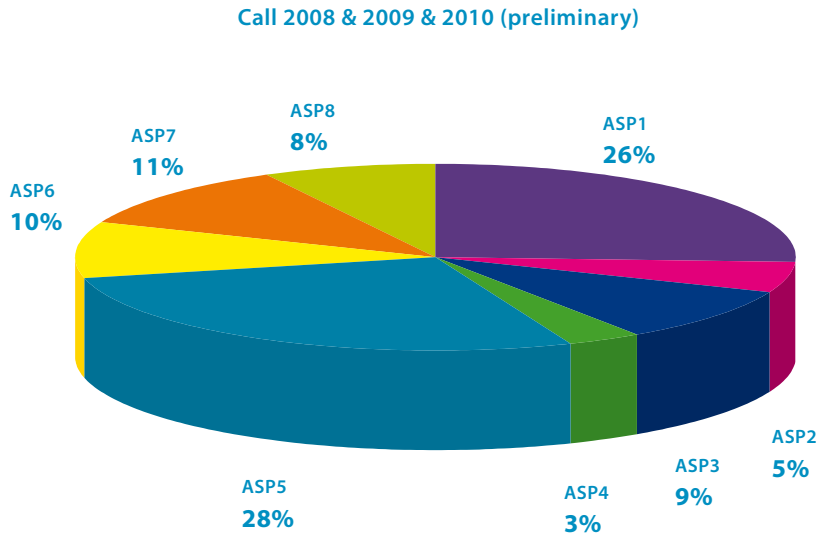


A SENSE OF SCALE

While the average number of countires in projects is not a figure of merit in itself, it is important for ARTEMIS. Studies of the vaste amounts of literature on Innovation indicate that product innovation is best served by dynamic, focussed, ad-hoc networks (which is typical of many projects under the Eureka cluster), while market innovation – the establishment of broader infrastructures that support innovation over a larger base – are best supported by larger, more structured networks. It is the latter that ARTEMIS aims to achieve – these are the foundations of the 'self-sustaining innovation eco-systems' that the ARTEMIS SRA refers to – so this broader Europeanisation of the projects is an important metric for ARTEMIS.

The two charts 'Number of Partners' and 'Total Eligible Cost', simply give an idea of the scale of the ARTEMIS projects. With an average of 21 partners investing 16 M€ per project, the programme is certainly moving towards larger, high impact projects.

CONCLUSIONS



At the time of writing, the project proposals from Call 2010 have been evaluated and a selection for funding made. Based on the preliminary information form these projects, the successful Call 2010 proposals are augmenting some of the application-oriented ASPs, as can be seen below (the large relative effort on ASPs 1 and 5 has been reduced).

Call 2010 is the third call of six planned for the ARTEMIS Joint Undertaking, so the programme is now half way. The relative comparison of the various parts of the ARTEMIS programme is giving indications that, in general, the programme itself is well underway, with a little imbalance beween the ASPs to consider. However, this relative comparison does not highlight the lower than anticipated public participation in the programme overall. Despite this, the ARTEMIS community of stakeholders is still working together to produce some really spectacular results.

With this unique culture, and irrespective of its total monetary size, these will not only impact the way Europe innovates around Embedded Systems, to the benefit of all of Europe's citizens, but will establish a sturdy foundation for the future.

ASP1: *Methods and processes for safety-relevant embedded systems*
ASP2: *Healthcare systems*
ASP3: *Smart environments*
ASP4: *Efficient manufacturing and logistics*
ASP5: *Computing environments for embedded systems*
ASP6: *Inter-networked ES for Security and Critical Infrastructures Protection*
ASP7: *Embedded technology for sustainable urban life*
ASP8: *Human-centred design of embedded systems*

Calendar for the Call 2011

14 & 15 December 2010: Brokerage Event organised by ARTEMIS Industry Association

January-Mid February 2011: Information and Networking events around Europe

28 February 2011: Call opens

1 March 2011: ARTEMIS Project Proposers' Information Day, Nürnberg

31 March 2011: Deadline for Project Outline (17h00:00 Brussels time)
(Feedback on PO – May).

1 September 2011: Deadline for Full Project Proposals (17h00:00 Brussels time)
Projects can typically start as early as January 2012.

The calendar of events is updated frequently. Check it on www.artemis.eu.

ARTEMIS BROKERAGE EVENT CALL 2011

At the time of writing, the ARTEMIS Brokerage Event organised by the ARTEMIS Industry Association, has yet to take place on 14 & 15 December in Barcelona, Spain. The international Brokerage Event and its series of local networking meetings that will follow are designed to bring together a diverse mix of partners to exchange ideas for projects and to match up with the right partners in an atmosphere of 'creative chaos'. After two days in Barcelona this amazing process will yield several starting consortia gearing up for the ARTEMIS Call 2011. The launch will be on 28 February 2011. ARTEMIS Magazine has asked three members of the Industry Association to give their views on their motivation, strategy and expectations of the Brokerage event.

written by Ronald Begeer

SENSE AND SIMPLICITY

Founded in 1891, Philips today is a globally diversified company that focuses on the health and well-being of people in order to improving their lives through timely innovations. In 2009, Philips had a turnover of over 24 billion euros. Worldwide we employ over 118,000 people in more than 60 countries, and we are investing heavily in R&D with research labs in Europe, Asia and the United States. We are responding to global trends like ageing and increasing consumer empowerment, a more sustainable lifestyle, climate change and sustainable development. Ronald Begeer of Philips Corporate Technologies – Research, explains why ARTEMIS and Philips have much to offer each other.

Philips is market leader in cardiac care, acute care and home healthcare, energy-efficient lighting solutions and new lighting applications, as well as lifestyle products for personal well-being and pleasure with strong leadership positions in flat TV, male shaving and grooming, portable entertainment and oral healthcare. We cooperate with recognised partners contributing to the Philips product portfolio. Our strategy is to create and lead meaningful innovations working closely together in a spirit of open innovation.

EUROPEAN (AND OPEN) INNOVATION ~ Philips has a long track record in European Innovation Programmes. In total we have been involved in more than 1,000 projects in successive Framework Programmes since 1984. We are also involved in several other European R&D and Innovation programmes, ranging from the ARTEMIS Joint Technology Initiative up to the Eureka cluster, e.g. ITEA2. As Philips we have been involved in ARTEMIS from the early start of the Program. As one of the founders of ARTEMIS Industry Association we have been heavily involved in establishing the ARTEMIS Joint Undertaking. As a result of the first two calls, we are involved in several running projects. This year for the first time we will be leading a project in our Healthcare sector.

ARTEMIS forms an R&D a community in the area of Embedded Systems and is a legal framework for cooperation between academic partners, research institutes, large, small and medium enterprises. In the context of open Innovation, Philips is continuously looking for new innovation partners that complement the Philips competences in order to speed up the time to market of new innovations.

BROKERAGE AND MATCHMAKING ~ We are participating in the ARTEMIS Brokerage event for both networking and consortium building. Brokerage events are an excellent way to find new partners active in several ARTEMIS technology domains. We are looking for partners sharing the same innovation challenges in order to define an effective consortium for researching solutions for our future businesses. As for matchmaking and consortium building, we take a pragmatic approach, either taking the initiative for a project proposal ourselves and looking for partners with whom we can explore solutions for the innovation we would like to achieve or becoming a partner in a project where we can contribute to the projects goal, which is also of interest for innovations in the Philips product portfolio.

The purpose of our participation ambition is to become one of the major contributors to ARTEMIS in order to help the Philips business to grow and strengthen the position of Europe in the area of embedded systems. To complement our own strengths we would like to cooperate in industrially oriented programme like ARTEMIS because we believe that we will gain in efficiency and become more effective in our R&D by cooperation with other European players. ■

Ronald Begeer has been working since 1985 for several businesses at Philips Electronics, the last 12 years as Software Development Manager for Embedded Systems applications. Since 2006, he joined Philips Research as Programme Manager for Public-Private Partnerships. In this role he represents Philips Electronics in Public Private Partnership programs. In 2009 he became member of the Working Group writing the Strategic Research Agenda Working for ARTEMIS Industry Association. Furthermore he is chairman of the R&D working group for Embedded Systems of the Dutch innovation programme Point-One.
Email: Ronald.Begeer@philips.com

written by Natividad Herrasti

What kind of company is ETIC? The Embedded Technologies Innovation Centre (ETIC) is a non-profit innovation centre whose mission is to strengthen the local economy by incorporating embedded technologies and embedded systems in other companies' products. ETIC's first objective is to promote the use of embedded technologies by designing and developing completely new services and products. Its second objective is to generate innovation and facilitate knowledge transfer by means of pilot projects, prototypes, demonstrators and software developments. ETIC works for other companies, especially SMEs. ETIC was established in 2008 by a group of researchers with wide experience in developing embedded systems projects. From the beginning the aim of ETIC has been to empower the use of embedded systems, as is evident from the name of the centre. As embedded technologies can be applied in all types of application domains, in all types of common objects and aspects of everyday life, ETIC is already working around the home domain, health, smart environments, digital cities and multi-modal user interfaces.

What experience does ETIC have with European Innovation Programmes and specifically ARTEMIS projects? ETIC's researchers have years of experience working on European projects from FP5, FP6, ITEA1 and ITEA2. ETIC's team has been involved in projects related to ambient Intelligence, home networks and automation, the definition and development of middleware, wireless network sensors, human interaction technologies and others. ETIC is currently working on the ARTEMIS first-call project iLAND – mIddLewAre for deterministic dynamically reconfigurable NetworkeD embedded systems – where middleware to allow the dynamic reconfiguration of embedded systems is being designed and developed. As proof of concept of the iLAND middleware, ETIC will implement an application for monitoring the activities carried out by an elderly person living alone at home, collecting and recording context information (light switches, blinds, use of household appliances, ambient sensors, TV use, bed sensor,…). When the user has to be informed, the application will select the most suitable user interface according to the actual location of the person and the type of information to be given (a changing colour lamp, a picture frame, a sound, the TV,…).

Why do you participate in the Brokerage Event? The aim of participating in the Brokerage Event is to look for new projects and new partners for collaboration. In some cases, projects are interesting from a technological research perspective and, in other cases, the partners of the consortium are the main attraction. By working on European projects and especially those of ARTEMIS, ETIC acquires new knowledge, learns new technologies and gets new experience for use in collaboration with SMEs. Another mission of ETIC is to support other companies to participate in European projects by helping them in the preparation and development of projects.

How do you approach matchmaking and creating a consortium? The primary way is by getting in contact with partners in previous projects to see if new opportunities of development and collaboration can be started. A second way is trying to find new partners and meet new people. The Brokerage event allows this close contact and gives a good opportunity for sharing ideas and initiatives among the whole community around embedded systems. The tools offered by ARTEMIS for searching for new projects and new partners are also very valuable. There are two ways of approaching to a project proposal, first guided by an idea and a partner and second guided by an established consortium

And your participation ambitions? The purpose is to participate in at least one project proposal for next year. The sub-programmes especially relevant for ETIC are ASP2: Healthcare systems, ASP3: Smart environments, ASP7: Embedded technology for sustainable urban life and ASP8: Human-centric design of embedded systems. There are already some attractive proposals and the Brokerage Event will contribute to a better definition and preparation of new projects and new consortiums. ■

Natividad Herrasti worked for 25 years in the research center of Ikerlan. Nowadays, she is in charge of R&D projects in ETIC - Embedded Technologies Innovation Center. She participated in a lot of projects, some of them were subcontracted by companies, some others were national cooperation projects and quite some were European projects. Last years the projects have been within ambient intelligence technologies and user-centered designs. Most of the projects are related to create smart environments and natural human interactions. For more information email: nherrasti@embedded-technologies.org

FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS
– Design Automation Division EAS

The Fraunhofer-Gesellschaft is Europe's largest applied research organisation. Founded in 1949, it undertakes applied research aimed at economic development and the wider benefit to society. At present, the Fraunhofer-Gesellschaft has more than 80 research units in Germany, including 59 Fraunhofer Institutes.

Dr Peter Schneider is head of Heterogeneous Systems at the Fraunhofer Institute for Integrated Circuits, Design Automation Division in Dresden. The work of his R&D teams focuses on design and design methods for multi-physics systems like sensor systems and actuators.

DESIGN AUTOMATION ~ The Fraunhofer Institute for Integrated Circuits IIS is one of the largest research facilities in the fields of system and circuit design in Germany. Its Design Automation Division EAS, where I work, is competent on every level of functional design. Our expertise is particularly focused on designing and testing analogue and mixed-signal circuits, modelling and simulation as well as the development of heterogeneous systems and the synthesis-based design of highly complex digital systems.

The key activities of the design automation division are the development of methods for the computer-aided design of electronic and heterogeneous systems as well as hard and software prototyping as in magnetic position sensors, image sensor systems and smart textiles application. The technologies and services are provided to customers active in the fields of communication, digital broadcasting, microelectronics, microsystems technology, mechatronics and automation engineering.

FRAMEWORK FOR COLLABORATION ~ The Fraunhofer-Gesellschaft participates in numerous European-wide projects and activities including ARTEMIS, FP7, ITEA2, ENIAC and CATRENE. So does the Fraunhofer EAS, which is involved in Eurosyslib, Modelisar and 3DIM3. I think such activities provide a great opportunity to combine the competencies of large companies, smaller enterprises and research centres. Of course, Fraunhofer is currently active in ARTEMIS projects, such as Fraunhofer FOKUS in CESAR or Fraunhofer ESK in CHESS. Since these projects provide an excellent framework for collaboration there is a unique opportunity for outstanding research in the field of embedded systems. The ARTEMIS focus on this subject is essential for its future development and for professional cooperation in Europe. And, a very important aspect from my point of view and in contrast to fairly isolated approaches, ARTEMIS projects allow the incorporation of a significant number of competent partners. This is key to creating the opportunity to develop solutions for setting European standards.

MATCHMAKING ~ When we look for partners, our search is oriented towards competencies and experience. That aside, I think an ideal consortium should be a well-balanced mixture of large industry, small and medium sized enterprises and academia if we are to give balanced consideration to all needs and constraints from different perspectives. To ensure a high quality we define common goals and the working structure for a project with our partners. That includes the particular research activities as well as the validation of solutions through their application in practical test scenarios. In all of these matters, are focused on the long-term success of project results in the market to enable European leadership in future applications of embedded systems.

THE ARTEMIS CONNECTION ~ Since a lot of activities of the Fraunhofer Institute IIS Division EAS are related to design and design methods of electronic and mechatronic systems, which are mostly typical embedded systems, we are pleased to see events dealing with the topic. The ARTEMIS Brokerage Event is an excellent platform to exchange ideas concerning new architectures, design methods and application requirements. I attended the last year's event in Amsterdam and appreciated the inspiring atmosphere. In combination with the possibility to transform these ideas into projects, it is, from my perspective, a very efficient way to establish new collaborations. We are currently developing a specific project idea at our institute, one that deals with the application of complex sensor systems, especially with the important issue of calibration, which can be supported efficiently by innovative approaches for system level simulation. The Brokerage Event gives me the opportunity to promote this idea, discuss it with experts and find partners for the realisation of the project. Of course I also will be looking for other cooperation possibilities related to the competencies of our institute in general. ■

The recent ProSE workshop that took place in the ARTEMIS Joint Undertaking office in Brussels on 5 November, aimed to review the draft Standardisation Strategic Agenda. The workshop came up with a number of important recommendations. Laila Gide, as co-chair of both ProSE and the ARTEMIS Industry Association working group Standardisation, is perfectly placed to explain the aims and achievements of the ProSE project to date and to shed light on where ARTEMIS can pick up the baton after 2010.

ProSE
– standardisation is the key

In brief, the primary aim of the two-year ProSE project (FP7) is to support the 'Embedded Systems' community, particularly ARTEMIS and the Industry Association, to implement its standardisation goals by establishing a methodology to prioritise and build links with the standardisation bodies thereby fostering the emergence of standards in line with the high-level objectives of the ARTEMIS European Technology Platform. More specifically, ProSE wants to enable the emergence of high value standards by disseminating knowledge about relevant deployed and emerging standards in the field of embedded systems within the related R&D communities in Europe. The next step is the identification and prioritisation of new areas for standardisation activities along with a practised methodology for supporting their development and acceptance.

To date, ProSE has surveyed the state of the art and performed a gap analysis by adopting a methodology to identify appropriate standardisation candidates. ProSE has also linked to European national and international standardisation bodies and pre-standardisation organisations by collaboratively (e.g., in workshops) classifying different standardisation needs, and elaborating common issues across research areas and projects. In so doing, ProSE has also contributed to the action plan for ICT, defined by the European Commission in March 2006, identifying major relevant standardisation organisations and developing criteria for evaluating candidate standards, a work model and procedures for promoting these candidates to 'standard' status in the long term. Ultimately, ProSE intends to establish a self-sustaining process – an approach and a way of working – that will live well beyond the end of the proposed project itself, as long as it is effective in coping with the challenges of finding cross-domain solutions and improving reusability in the field of embedded systems.

STRATEGIC FOCUS ~ The need for one standard rather than the multiplicity that currently exists within Europe was clearly a concern voiced at the workshop. Regrettably, much time had been lost negotiating which body should lead the activity. The workshop supported the ambitions of ProSE and gave general support to the ProSE approach of a methodology to identify areas where is would make sense to establish standards. Indeed the ProSE assessment criteria had already proved beneficial in practice. However, the workshop strongly recommended that greater consideration should be given to strategic issues. Indeed, the overriding conclusion was that the present strategic situation is BAD and that something must be done. European industry is no longer driving standardisation to gain an industrial advantage; it is divided and unable to overcome its divisions and cooperate to mutual gain. Furthermore, its commitment to RTD, which generates the technology that is the

basis of standardisation, is strong although the results on standards are not optimal.

RECOMMENDATIONS ~ The workshop concluded that ARTEMIS and its Standardisation Working Group should work at a high level to get the message to both politicians and captains of European industry that the EU is losing both momentum and opportunities due to the attitudes and policies of many companies today, and that both European governmental and administrative bodies (Parliament, Council and the Commission) and European companies must:

> acknowledge that to successfully innovate, Europe must seek to be more effective in getting research results and new technology to market – it is not sufficient to support the 'upstream' research at which Europe excels
> recognise the need to value standardisation and to take the lead in this (in appropriate domains)
> recognise the need to cooperate on standardisation across competitive boundaries and to reconcile and manage the differences that presently inhibit such co-operation
> invest in the efforts required to bring about standardisation, allowing staff the time and support to bring about long-term benefits
> invest in people in RTD to feed the technology pipeline that provides the basis for standardisation
> facilitate recognition of the role of standardisation in education and training
> consider establishing a kind of 'Nobel Prize' for standardisation, with a high profile in the public press and media.

THE END IS A NEW BEGINNING ~ ARTEMIS should seek to cooperate with European Standardisation Organisations at the highest level to identify priorities and develop a strategy, and for ARTEMIS to support implementation of this strategy. Such a European strategy for embedded systems standardisation should place special emphasis on enabling technologies, especially integration, in which Europe has considerable capability, and which is central to the realisation of the aims of ARTEMIS. ARTEMIS should also facilitate the development of European Standardisation Roadmaps as well as explore with the Commission the possibility of a post-R&T 'downstream' programme for the deployment of RTD results.

All in all, while ProSE may be drawing to an end, the hope expressed by Laila Gide is that the ARTEMIS JU will be able to dedicate some resources in the next year or two to ensure that the basis established by ProSE can be continued. ■

Laila Gide is Vice-President European R&T/D programmes for THALES, a global electronics and systems group serving defence, aerospace and security markets. THALES is one of the companies that signed the ETP-document 'Building ARTEMIS'. The company is also one of the founding fathers of ARTEMIS Industry Association. Laila Gide is member of the Steering Board and she is co-chairing the working groups Standardisation and Strategic Research Agenda of the ARTEMIS Industry Association.

THE INDUSTRY'S TOP GATHERING GROWS AGAIN

written by Prof. Dr Matthias Sturm

Professor Dr Matthias Sturm, head of the board of exhibitors and chairman of the embedded world Exhibition & Conference Committee, the biggest and most important event of its kind, opens the series of high-tech exhibitions and special-interest, knowledge-packed events at the Nürnberg venue every year. The standards and records its sets every time are expected to be bettered in 2011 too, with the organiser anticipating around 750 companies – another record. The current share of new exhibitors is already above 10%.

embedded world is undisputedly the world's leading event for the international embedded community, having constantly set standards and records since it was launched in 2003. The number of exhibiting companies has more than doubled and embedded world has become more than just a trade show with the whole range of embedded system development from hardware, software and tools to applications on show. The embedded world conference and electronic displays conference take place in parallel in Nürnberg. These two highly focused and specialist conferences are oriented towards modern, leading-edge ideas and solutions to global challenges for which engineers, and especially the developers of embedded systems, bear special responsibility. embedded world therefore acts as the international embedded community's top platform for information sourcing and high-level exchange of views.

PERFECT SYNERGY: ARTEMIS AND EMBEDDED WORLD ~ There is significant synergy between ARTEMIS IA and embedded world, With ARTEMIS meetings focusing on projects and oriented to future technology and the embedded world conference targeting solutions and practical applications. For me, this is a perfect form of synergy for the international embedded community, which meets annual at their most important event, embedded world.

My visit to the Co-summit in Ghent in October allowed me to see lots of interesting projects and innovative power. It was wonderful to meet other ARTEMIS members and visitors with the same spirit of bringing embedded systems development to people's minds and acting as the driving force for technological advances. Here I would especially like to mention two main directions: the management of multi-core systems and cloud computing, which affect lots of embedded systems.

The topics covered at the Co-summit presentation are also topics at the embedded world Exhibition & Conference. Engineers visiting embedded world are curious and interested in innovative ideas and solutions for their daily work. So the inspiration generated by the ARTEMIS projects is an important way for engineers to become oriented in their current and future work. And the project members get feedback from the industry's experienced developers on how to turn ideas into products.

It is not ARTEMIS as an organisation that is of primary interest to me but meeting and talking to the people there, especially the ARTEMIS

members. It was a great pleasure to hear Mr Schutz talk about his vision of a near-future world and the role of embedded systems development. His statement 'think big' could be embedded world's slogan. Discussions with members at the booths also gave insight into innovative ideas, and how to realise them, and showed the power of embedded technology.

EMBEDDED WORLD AND ARTEMIS CONNECT PEOPLE ~ embedded world aims to connect people – to learn from each other at the conference and understand new ideas described by experts, but also to develop new products and markets and drive business worldwide.

The main benefit for ARTEMIS and embedded world is that we meet at the ARTEMIS spring event in Nürnberg. The newest hardware and software products will be presented there, plus the most modern development tools for quick and successful embedded system development. All the new and modern methods for developing embedded systems will be described and qualified during the sessions and lectures at the conference. The sharing of experience among researchers and engineers in the field of embedded systems brings success through project development and finally ends up in products. On the other hand, the embedded world visitors can get to know ARTEMIS projects and see where knowledge is available and where partners can be found for the next project.

When it comes to the presentation of companies and products in the field of embedded systems in a close, compact and complete form coupled with the possibility of learning and understanding the background of embedded technologies, software development methods and debus strategies, I think there is no better place in the world than Nürnberg – at the embedded world Exhibition & Conference. ■

Professor Matthias Sturm

Professor Matthias Sturm studied electronics technology at the Technical University of Mittweida. From 1981 he worked in various companies in the field of robotics and switched in 1985 to the Technical University of Leipzig. Here he developed microcontroller based instruments for science. In parallel, he worked on his dissertation in the field of nuclear instrumentation, which he concluded successfully 1992 with the title Dr.-Ing.. In 1993 he was appointed Professor of Microcomputer and Electronics at the University of Applied Sciences Leipzig (HTWK). Since 1996 Prof. Sturm has organised congresses on embedded systems development. He demonstrated his ability as an expert in the field of embedded system development by lectures and publications winning the recognition of the embedded community. Since 2003 he has led the advisory board of the 'embedded world – exhibition and conference' and is responsible for the content of the embedded world conference. In 2006 Prof. Sturm was voted as one of the ten best Professors of Germany in the field of engineering science.

ARTEMIS SPRING EVENT 2011

1 & 2 MARCH

NürnbergMesse
Nuremberg, Germany

Joint located with embedded world 2011 Exhibition&Conference

MORE INFORMATION & ONLINE REGISTRATION
www.artemisia-association.org/springevent_2011

ARTEMIS

Advanced Research & Technology for EMbedded Intelligence and Systems

Calendar

31 JANUARY – 1 FEBRUARY 2011
PARIS, FRANCE
ITEA2 PROJECT OUTLINE PREPARATION DAYS
The aim of this two-day meeting is to help organisations from consortia and generate preliminary outlines for projects by bringing together interested companies, research institutes and universities with innovative ideas for projects in ITEA 2. More information: www.itea2.org

1-2 MARCH 2011
NUREMBERG, GERMANY
ARTEMIS SPRING EVENT 2011
The annual ARTEMIS Spring Event will be held, like last year, in conjunction with the embedded world Exhibition & Conference 2011. The programme of the Spring Event will include the General Assembly of the ARTEMIS Industry Association, Project Outline Information Day by the ARTEMIS Joint Undertaking and an interesting key note speech by Prof. Dr.-Ing. Matthias Sturm, Chairman of the embedded world Exhibition & Conference Committee.

The ARTEMIS Project Outline (PO) INFORMATION DAY takes place on 1 March in Nuremberg as part of the ARTEMIS Spring Event 2011.

ARTEMIS will be present on the exhibition floor of Embedded World – several demonstrators will be presented. Visit your ARTEMIS booth in Hall 11, stand 306.

embedded world 2011
Exhibition&Conference
... it's a smarter world

More information: www.artemisia-association.org/springevent_2011

14-18 MARCH 2011
GRENOBLE, FRANCE
DATE 2011
DATE2011 will be the place to learn about the latest in the design and engineering of electronic systems and embedded software, please read the message from the Technical Programme Chair, Professor Enrico Macii. DATE 2011 will feature two Special Days focusing on topics of outstanding importance to industry and academia and will dedicate a full-day program of keynotes, panels, tutorials and technical presentations to each of them.

More information: www.date-conference.com

19-20 MAY 2011
BUDAPEST, HUNGARY
ICT PROPOSERS' DAY 2011
The ICT Proposers' Day 2011 is dedicated to networking and promoting research & development in the field of Information and Communication Technologies. This event informs you about the funding opportunities offered by the European Union in the field of ICT research & development, about participating and looking for the right partners to form project consortia in Calls 8 and 9 of the FP7 ICT Work Programme. ICT Proposers' Day 2011 is organised by the European Commission and hosted by the Hungarian Presidency of the European Union.

More information:
ec.europa.eu/information_society/events/ictproposersday/2011

Editorial information

ARTEMIS Magazine is published 3 times a year by ARTEMIS Industry Association and ARTEMIS Joint Undertaking.

ARTEMIS aims to tackle the research and structural challenges faced by European industry by defining and implementing a coherent research agenda for embedded computing systems. Its ambition is to help European industry consolidate and reinforce its world leadership in embedded computing technologies.

ARTEMIS Industry Association is the association for R&D actors in embedded systems with 200+ members around Europa. The Industry Association continues the work of the European Technology Platform and is therefore responsible for the ARTEMIS-ETP Strategic Research Agenda set up by the European Technology Platform in2006.

ARTEMIS Industry association creates the meeting place where the stakeholders identify topics for major R&D projects that they want to pursue together, form consortia and initiate project proposals for joint collaboration, and building of ecosystems for embedded intelligence.

The ARTEMIS Joint Undertaking is a Brussels based organisation legally established in February 2008 and gaining autonomy in October 2009. It is a Public Private Partnership with the EC and participating Member States. The ARTEMIS Joint Undertaking adopts a commonly agreed research agenda closely following the recommendations of the Strategic Research Agenda developed by the members of ARTEMIS Industry Association. The ARTEMIS Joint Undertaking will manage and co-ordinate research activities through open calls for project proposals through a 10-year, €2.5 billion research programme on embedded systems.

ARTEMIS Magazine provides information on the developments within the ARTEMIS community. It's aim is to keep the ARTEMIS community and beyond updated about the Association, Joint Undertaking, programme status & progress, achievements and events in embedded systems. An online version of ARTEMIS Magazine is available on www.artemis-ia.eu and www.artemis-ju.eu

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Submissions:
ARTEMIS news or events linked to the ARTEMIS programme, its projects or general ARTEMIS related subjects? For ARTEMIS Magazine 10, submit your information before 25 January 2011 to: communications@artemis-ia.eu

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Advanced **R**esearch and **T**echnology for **EM**bedded **I**ntelligence and **S**ystems

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